Climate Change Communication:

How Concepts are Constructed through Metaphor

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This thesis investigates how concepts of climate change are constructed through metaphor in the American business and news publications *Bloomberg Businessweek*, *Forbes*, *Newsweek*, *Time*, and *The Wall Street Journal*. More precisely, this study examines and compares the conceptual metaphors used in conjunction with the terms *climate change* and *global warming*; determining if the two terms are viewed distinctively or preferred differently, exploring both the metaphorical language and concepts used to describe them, and suggesting how these concepts both illustrate and formulate people's opinions, beliefs and actions.

This study utilises the theoretical framework of Conceptual Metaphor Theory that was developed by George Lakoff and Mark Johnson (1980) for the purposes of metaphor analysis. The theory asserts that metaphors operate both at the level of language and at the level of thought. More explicitly, this describes how our conceptual system is paramount in defining our everyday realities.

The methodological framework employed in this study is based on the three-staged approach of metaphor analysis specified by Lynne Cameron and Graham Low (1999). This methodology was further developed to incorporate a fourth stage in order to more effectively accommodate the aims of this study. These stages include; firstly identifying relevant metaphors in the publications examined, secondly grouping these metaphors by the source domains they employ, thirdly identifying and classifying the underlying conceptual metaphors conveyed, and lastly suggesting how these concepts both portray and construct people's beliefs, attitudes, and actions.

The purpose of this study is to explore the use of conceptual metaphor in climate change communication, both describing how our understanding of climate change may be influenced by the conceptual metaphors we receive, as well as demonstrating how concepts are constructed on a general level, a method that may be applied to any subject matter. The results of this study show that the concept of climate change is constructed through metaphor in a variety of ways, with certain key elements arising in repetition. The concepts portrayed differed between publications, relevant to the interests of the publication in question. The overall sentiment conveyed was one of caution regarding the complex and ambiguous phenomenon of climate change.

Keywords: Climate Change, Global Warming, Conceptual Metaphor, Climate Change Communication, Business, Politics, Environment, Media, United States of America

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1. Introduction

An essential element of communication is its ability to shape our perceptions. The messages we receive from the world around us are constantly impacting on our opinions and understanding; influencing our attitudes, beliefs, and the way we operate in society (Bostrom & Lashof 2007, 31). Often the messages we receive are presented by factions that are expressing their own interests and concerns relevant to the subject under discussion, an arrangement that is well articulated in the words of Neil deGrasse Tyson:

> Once upon a time, people identified the god Neptune as the source of storms at sea. Today we call these storms hurricanes. We know when and where they start. We know what drives them. We know what mitigates their destructive power. And anyone who has studied global warming can tell you what makes them worse. The only people who still call hurricanes "acts of God" are the people who write insurance forms (deGrasse Tyson 2007, 361).

The fact that hurricanes are still defined as "acts of God" by certain parties illustrates the notion that different groups of people have differing interests and concerns. The underlying motivations and concepts of the language user are reflected in the language that they chose to communicate their perceptions, which in this particular example concern the climate. The field of climate change communication is involved in investigating exactly these diverse and differing messages that we receive on the subject, which are constructing our perceptions on climate change, and thus influencing our opinions and subsequent actions in regard to the phenomenon (Bostrom & Lashof 2007, 31).

The focus of this study falls under the heading of climate change communication. As a discipline, climate change communication is a relatively fresh field, and may be considered a branch of ecolinguistics and ecocriticism, also relatively contemporary fields of research. Ecolinguistics refers to the study of the influence of language on the relationships between humans, other organisms and the environment, and ecocriticism is generally geared toward trying to uncover hidden assumptions (Fill & Mühlhäusler 2006, 1). This study examines how humans are portraying

the environmental and political issue of climate change through the use of conceptual metaphor, observing the underlying messages and perceptions that they are communicating. Whilst this study investigates the use of both the terms *climate change* and *global warming*, this study will only use the term *climate change* when describing the full phenomenon in question, as *climate change* is the scientifically correct term which contains the concept of global warming as an element of its definition (Internet Source 1).

In order to observe conceptual metaphors portraying perceptions on climate change, this study utilises the field of metaphor analysis (MA), which is an interdisciplinary approach that focuses on how social and political factors are expressed and reinforced through the use of metaphor. The common thread that links metaphor analysis to a variety of disciplines is a social constructionist epistemology, in which language is considered to be a crucial element in constructing our ideas and views of the world, as opposed to the idea that language simply mirrors the world around us (Todd & Harrison 2010, 480). This study investigates how ideas and concepts are both constructed and presented through metaphor. The central theory is that the larger concepts that are projected through the use of metaphor reflect the language user's perception of the world, or in terms of political rhetoric, often the perceptions the language user wishes its audience to have (Charteris-Black 2005, 17).

Cognitive theory, which is often used in the field of psychology, and increasingly in linguistics, considers metaphors to be reflections of the various interplay of knowledge of the language user's understanding of the world. The crux of this form of stratification can be condensed into the following sentence: "Metaphorical thought, in the form of cross-domain mappings, is primary; metaphorical language is secondary" (Lakoff & Johnson 1999, 123). This means that the associations that we make in our minds are central in constructing our views, while the metaphorical language we choose to express these thoughts with, is secondary. People's perceptions of the world are of course a central element of politics, which leads to the conclusion that

conceptual metaphors are a critical factor in this field. Andreas Musolff has stated that "If our social experiences and conceptualizations are organised in terms of metaphors, then politics, as part of the social domain, must also be perceived and constructed metaphorically" (Musolff 2004, 2).

Interpretations of both the terms *climate change* and *global warming* have been central in politics and the media in recent years, particularly as political perceptions on climate change have been undergoing a rather large shift (Klein 2014, 35). Large changes tend to happen less frequently than the usual, gradual shifts in trends that happen with public opinion on large social and political issues. Conversely, sudden changes are generally triggered by dramatic events, which made the change in perception on climate change over the space of just four years rather surprising:

> A 2007 Harris poll found that 71 percent of Americans believed that the continued burning of fossil fuels would alter the climate. By 2009 the figure had dropped to 51 percent. In June 2011 the number went down to 44 percent – well under half the population. Similar trends have been tracked in the U.K. and Australia (Klein 2014, 35).

This intriguingly dramatic swing in opinion is evidence that further investigation into climate change communication is essential. Understanding what is happening in the realm of climate change communication gives us perspective on where our society and global community are heading – not just environmentally, but also politically, economically, and socially (Cole & Watrous 2007, 192).

In essence, climate change communication investigates how, what, and why people are communicating about climate change. Brigitte Nerlich et al. describe metaphors and other similar language devices as being a crucial component of climate change communication, describing the field as focusing "in particular, on the role of language (metaphors, words, strategies, frames, and narratives) in conveying climate change issues" (2010, 97). The central focus of the discipline is uncovering what messages are being communicated, how and why these messages are being communicated, and what attitudes, beliefs, and behaviour may result from this communication. The focus of this study is on the messages that are conveyed through conceptual metaphors; investigating what concepts the audience may extract from these metaphors, what the motivations

for presenting these concepts may be, and what actions this communication may potentially result in. This study expressly investigates the conceptual metaphors used in conjunction with the terms *climate change* and *global warming* in popular American news and business publications, examining and comparing how each publication investigated portrays the terms through metaphor. In order to accomplish this, the main research question this study examines is:

- How are the concepts of *climate change* and *global warming* portrayed through metaphor in the American business and news magazines *Bloomberg Businessweek*, *Forbes*, *Newsweek*, *Time* and the newspaper *The Wall Street Journal*?

More explicitly, this study investigates the following questions:

- Concerning the terms *climate change* and *global warming*, is one preferred over the other? Or are they favoured differently by different publications?
- Are *climate change* and *global warming* viewed distinctively?
- Do different publications use differing metaphorical language?
- How are the concepts constructed through metaphor? Do these concepts differ between publications?
- What behaviour may result from the messages of these conceptual metaphors that readers receive? Will they be moved to action or complacency?

In answering each of these questions, I also endeavour to suggest the reasons and motivations for why each finding has occurred. These suggestions are based on the evidence of this study and the background information collected in this thesis on both the subject of climate change and that of each individual publication investigated. In this manner, I attempt to answer the how, why, and what that is being communicated through the terms *climate change* and *global warming*.

Practical applications of this study include an important contribution to the field of climate change communication, where this thesis will add to the knowledge of how, why, and what people are communicating about climate change, and what actions and attitudes may potentially result from these communications; information that is essential in our present-day society. As this study investigates how the terms *global warming* and *climate change* are represented and expressed through metaphor, a more specific use may be exerting some influence on the choice of words used

in fields such as advertising, where total word count is often brief and choice of words is crucial. Many businesses are currently in the process of highlighting how their products and services are contributing to positive environmental changes; for example power companies, automobile companies, construction companies, and myriad other businesses and organisations. The choice of term or metaphor may be paramount in reaching a specific demographic in an appropriate manner.

This study also describes the way in which metaphor can be applied in order to create certain connotations of a term, illustrating how concepts are constructed in a more general manner, which has broader applications in the fields of media and politics where the construction of concepts plays a central role. The importance of word choices in politics, and the direct effects it can lead to, has been expressed by Kathleen Hall Jamieson and Paul Waldman in the following fashion:

> Language choices not only reflect individual disposition but influence the course of policy as well. Tax cuts or tax relief? Religious or faith-based? Death penalty or execution? Estate tax or death tax? Civilian deaths or collateral damage? In the early stages of almost any policy debate, one can find a battle over which terms will be chosen. Because the terms we use to describe the world determine the ways we see it, those who control the language control the argument, and those who control the argument are more likely to successfully translate belief into policy (Jamieson & Waldman 2004, xiv).

There is of course a very broad spectrum of political affairs that relate to the terms *global warming* and *climate change*, as opposed to just one particular political debate. Indeed, Naomi Klein has stated that "by posing climate change as a battle against capitalism and the planet, I am not saying anything that we don't already know" (2014, 22), alluding to the fact that many believe American politics must undergo a fundamental change in ideology if the most devastating effects of climate change are to be avoided (Ibid.).

Yale University places the term *Climate Change Communication* above a subheading called *Bridging Science and Society*, which is something that this study will hopefully accomplish. Society as a whole will certainly benefit if we pay closer attention to the cultural constructs we create and examine how these affect our everyday lives. Climate change is a topic that is currently under hot

debate, from many different angles, and as such it is especially important that we are all clear on exactly what it is that we are discussing.

The structure of this thesis proceeds in the subsequent manner: following this introduction, the second chapter focuses first on defining the terms *climate change* and *global warming* by investigating how they are described by dictionaries; followed by a section which illustrates how the terms have been used in American English in the recent past. The third chapter focuses on climate change communication, first depicting the environmental aspect; defining the phenomenon in a comprehensive manner, followed with a scientific breakdown of greenhouse gases and fossil fuels in order to ensure that the scientific concepts of *climate change* and *global warming* are clear. This is followed by a section giving an account of the political aspect; briefly examining attitudes, loyalties and conflicts of interest, and going on to investigate the notion of false balance and potential groups of influence. Chapter 4 provides the theoretical and methodological framework for this study; first exploring the central concepts of both metaphor theory and the methodology employed in this study, and secondly inspecting the use of metaphor in political media. Chapter 5 details how the data for this study was chosen, retrieved and examined, first giving a comprehensive account of the data used for this study, followed by describing the method with which the data was investigated and how the results were produced. Chapter 6 provides the results of the study, detailing the metaphors discovered in each publication; *Bloomberg Businessweek*, *Forbes*, *Newsweek*, *Time*, and *The Wall Street Journal*, concluding with a section that gives brief summary of the results. Chapter 7 provides a discussion of the results, in which the research questions stated in this introduction are addressed and answered. This study concludes with an overall summary of this research presented in chapter 8.

2. Defining the Terms *Climate Change* and *Global Warming*

This chapter begins with a section that focuses on how the terms *global warming* and *climate change* are defined by dictionaries, examining the entries from three different dictionaries and one concise encyclopedia. Following a brief analysis of the definitions found, the first section provides a conclusion on what these definitions may mean for this study. The second section of this chapter gives an overview of how the terms *global warming* and *climate change* have been used in recent decades in American English by examining the Corpus of Contemporary American English (COCA), making suggestions as to what the findings may entail for this study.

2.1. Dictionary Definitions

It could be argued that the terms *climate change* and *global warming* are generally considered synonyms, despite one term being more fully encompassing than the other (Internet Source 1). Synonyms, however, often have a slight difference in meaning or usage (*Oxford English Dictionary* 1980), and as such, *climate change* and *global warming* can be considered synonymous terms. The *Oxford English Dictionary* (*OED*) defines the term *climate change* as:

> *n*. an alteration in the regional or global climate; *esp.* the change in global climate patterns increasingly apparent from the mid to late 20th cent. onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels; cf. global warming *n*. (*OED* 2008).

The *OED* defines the term *global warming* in the following manner:

> A long-term gradual increase in the temperature of the earth's atmosphere and oceans, *spec.* one generally thought to be occurring at the present time, and to be associated esp. with side effects of recent human activity such as the increased production of greenhouse gases (*OED* 2009).

The *OED* provides similar definitions for both *climate change* and *global warming*, specifying that global warming is something considered to happen more gradually over time, whereas climate change effects seem to be of a slightly more immediate nature. Both are defined as being associated with human activity and the increased production of greenhouse gases. The *OED* lists the first

recorded use of the term *global warming* as being in 1952 in an American news publication, whereas the first recorded instance of the term *climate change* (in its current meaning) was as early as 1854, also in an American publication.

The *Collins COBUILD Advanced Dictionary* defines *global warming* as "the gradual rise in the Earth's temperature caused by high levels of carbon dioxide and other gases in the atmosphere" (2014). There is no specific mention of the involvement of human activity in this definition. It is possible to infer from this definition that the high levels of various gases in the atmosphere that are causing this rise in the Earth's temperature are a somewhat isolated phenomenon that is unrelated to humans. The *OED* clarifies that the rise in these levels of atmospheric gases is directly produced by the use of fossil fuels, which implies human involvement. Curiously, the *Collins COBUILD Advanced Dictionary* did not contain the term *climate change* at all.

The *Merriam-Webster Online Dictionary*, which has a special focus on American English, offers a search of both the traditional dictionary and a concise encyclopedia, the entries of which are listed as belonging to the *Encyclopædia Britannica Concise*. Interestingly, neither the dictionary nor the concise encyclopedia were able to return any definitions for the term *climate change*. The term *global warming* was however found in both and was defined by the dictionary in the ensuing manner: "An increase in the earth's atmospheric and oceanic temperatures widely predicted to occur due to an increase in the greenhouse effect resulting especially from pollution" (2014). The *Encyclopædia Britannica Concise* went on to broaden the definition of the term in the following fashion:

> In 2007 the IPCC… stated that it was now 90 percent certain that most of the warming observed over the previous half century could be attributed to greenhouse gas emissions produced by human activities (i.e., industrial processes and transportation). Many scientists predict that such an increase in temperature would cause polar ice caps and mountain glaciers to melt rapidly, significantly raising the levels of coastal waters, and would produce new patterns and extremes of drought and rainfall, seriously disrupting food production in certain regions. Other scientists maintain that such predictions are overstated (*Encyclopædia Britannica Concise* 2014).

Here the definition clearly includes the factor of human involvement, which can also be inferred by the *Merriam-Webster Online Dictionary* definition that uses the word "pollution", which would likely be understood as originating from a source that involves humans. It is worth noting that neither the *Merriam-Webster Online Dictionary*, associated encyclopedia, nor the *Collins COBUILD Advanced Dictionary* specified when the entries examined were last updated. As such they have been dated as 2014 in order to show that this is how the entries appeared online when inspected in 2014.

It is intriguing that the term *climate change* was only found in one of these three dictionaries, despite having a recorded use in American English as early as 1854, as stated by the *OED* (2008). Examining the definitions of *global warming* that were given by all three dictionaries consulted, a slight difference in the terms of certainty of the subject can be detected. For example, the *Merriam-Webster Online Dictionary* and the affiliated *Encyclopædia Britannica Concise* use terms such as "predicted to occur" and "90 percent certain". The *Collins COBUILD Advanced Dictionary* conversely states that global warming is a scientific certainty, but does not make any anthropogenic associations. The *OED* is the only dictionary to highlight the issue of human involvement as a crucial component of the definition of *global warming*. The *OED* also concludes some uncertainty on the topic, stating that the issue is "one generally thought to be occurring at the present time", which somewhat differs from the *Merriam-Webster Online Dictionary* approach, in which the issue is only "predicted to occur".

It is clear from these dictionary definitions, or lack thereof, that the concept of climate change is not clear cut. It is in fact surprisingly vague, which is an important factor to consider when examining the metaphorical expressions of the terms *climate change* and *global warming* that are investigated in this study.

Previous research into this subject, such as that undertaken by Anthony Leiserowitz et al. in 2014, has produced some interesting results. Leiserowitz et al. examined a series of studies from

which they have concluded that the terms *global warming* and *climate change* were often not interpreted as synonymous by the American public. They found that the terms "mean different things to different people and activate different sets of beliefs, feelings, and behaviours, as well as different degrees of urgency about the need to respond" (2014, 27). The study concluded that people feel the term *global warming* is four times more likely to be heard in public discourse than *climate change*, and also that the term *global warming* is, almost without exception, more engaging than the term *climate change*. This is emphasized through the fact that *global warming* was found to have greater association with other terms such as *alarm*, *catastrophes*, *flood* and *icemelt*, whereas the term *climate change* had higher associations with the idea of general weather patterns (Ibid.).

The results found by Leiserowitz et al. suggest that this thesis may also encounter a higher use of the term *global warming* in the data examined, or at least in association with articles proposing to highlight the negative effects of the phenomenon. Conversely, the term *climate change* may instead be favoured, perhaps at least by publications intending to downplay the subject, as it is considered a more neutral and less alarming term.

2.2. Use in American English

This section focuses on the use of the terms *climate change* and *global warming* in American English in recent years. The purpose of this section is to give an overview of how and when the terms have been used, as well as to demonstrate that both the terms *climate change* and *global warming* are indeed being used, despite not always making an appearance in dictionaries. These summaries may then give an indication of the relative frequencies of the two terms that can expect to be encountered in the results of this study.

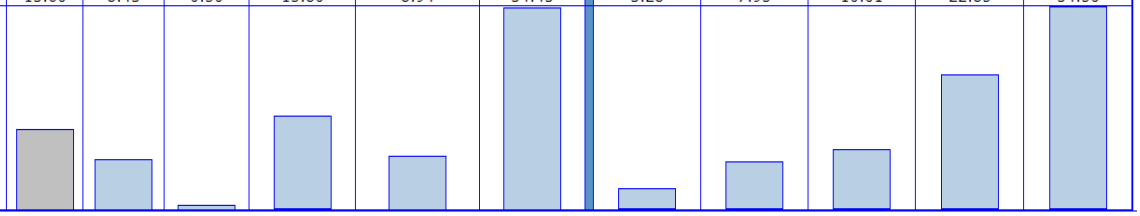
The Corpus of Contemporary American English (COCA) was created by Mark Davies and is comprised of over 450 million words which are equally divided into 5 different groups; academic, newspaper, magazine, fiction, and spoken texts. Its texts cover the years 1990-2012 and it is

regularly updated. The time span of this corpus covers a period that mostly precedes the data used for this study, making it useful in showing general trends of when and in what context the terms *global warming* and *climate change* have been used in the recent past, and how they may relate to the finding of this study:

Graph 1. *Climate Change* in COCA (1990-2012)

SECTION	ALL	SPOKEN	FICTION	MAGAZINE	NEWSPAPER	ACADEMIC	1990-1994	1995-1999	2000-2004	2005-2009	2010-2012
FREQ	6316	806	45	1510	820	3135	341	822	1030	2332	1791
PER MIL	13.60	8.43	0.50	15.80	8.94	34.43	3.28	7.95	10.01	22.85	34.50

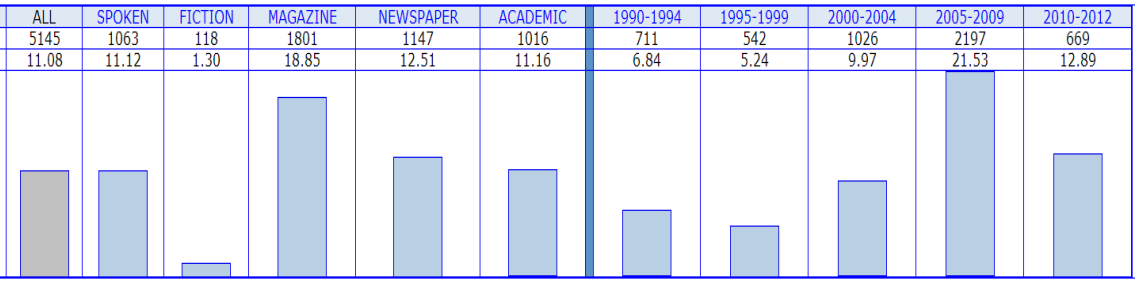
SEE ALL SUB-SECTIONS AT ONCE



Graph 2. *Global Warming* in COCA (1990-2012)

SECTION	ALL	SPOKEN	FICTION	MAGAZINE	NEWSPAPER	ACADEMIC	1990-1994	1995-1999	2000-2004	2005-2009	2010-2012
FREQ	5145	1063	118	1801	1147	1016	711	542	1026	2197	669
PER MIL	11.08	11.12	1.30	18.85	12.51	11.16	6.84	5.24	9.97	21.53	12.89

SEE ALL SUB-SECTIONS AT ONCE



Interestingly, the frequencies and overall number of hits for both *climate change* and *global warming* in COCA do not considerably differ; *global warming* has 5145 hits and a frequency of 11.08 per million words (pmw), while *climate change* has 6316 hits and a frequency of 13.60pmw. The term *global warming* reached its peak during 2005-2009 at 21.53pmw, dropping to almost half during 2010-2012 at 12.89pmw. *Climate change* conversely was already on par with *global warming* during 2005-2009 at 22.85pmw, but then rose steeply to 34.50pmw during 2010-2012. Observing this information, it may be expected that the data examined in this study will produce a higher instance of the term *climate change*, and a considerably lower occurrence of the term *global warming*.

Inspecting where the terms *climate change* and *global warming* are most frequently encountered in COCA, it is clear that *climate change* is a popular term in academic writing, boasting a frequency of 34.43pmw, more than twice that of the next highest section; magazines at 15.80pmw. The term *climate change* has been favoured in academics for quite some time as a more encompassing and accurate term than *global warming* for the phenomenon in question, where global warming is considered to be just one aspect of the broader notion of climate change (Internet Source 1).

The term *global warming* was more evenly dispersed among the different fields in COCA, but had the most hits with magazines, at 18.85pmw, followed by newspapers at 12.51pmw, academic writing at 11.16pmw, and finally spoken language at 11.12pmw. It is interesting to note the higher use of the term *global warming* found in magazines and newspapers. This may perhaps suggest that certain publications are more in favour of the term *global warming*, which may be a more familiar term for readers due to its prior higher use and more frequent appearance in dictionaries. It may also suggest that there are political or economic reasons for continuing to favour the term *global warming*, as highlighted in the study produced by Leiserowitz et al., which discovered that *global warming* carries more negative connotations than the term *climate change* for a significant number of Americans (2014, 28).

3. Climate Change Communication

Climate change communication as a field focuses on exactly that; communication about climate change. More precisely, it examines how and what specifically is being said by whom and why. This chapter focuses on breaking down climate change communication into separate categories; firstly addressing the environmental element of the field, and secondly investigating the political perspective. The purpose of this overview is to first explain the basic scientific definition of the

phenomenon that is climate change, as it is necessary to be clear on what defines the core concept before metaphors on the issue can be identified. Secondly, it is equally important to clarify the political aspect of climate change, as political interests will influence both the third and fourth stages of metaphor analysis, which include identification and evaluation of underlying conceptual metaphors.

The first section of this chapter investigates the environmental aspect of the issue; defining the terms *global warming* and *climate change* in a scientific manner, and explaining the exact mechanics of the phenomena in question. These mechanics are further divided into sections that explain the roles of greenhouse gases and fossil fuels respectively.

The second section focuses on the political aspect of climate change communication; briefly examining attitudes, loyalties and conflicts of interest, followed by a consideration of the concept of false balance, and how it may make an appearance in the results of this study. The concluding section concentrates on what parties may be privy to influence on the political perspectives of climate change communication, and how this knowledge may relate to the findings of this study.

3.1. Environmental Aspect

There is certainly some discord over the concepts of both *global warming* and *climate change*, as evidenced through the dictionary definitions examined in the second chapter of this study. There are however strict scientific definitions of the phenomena in question, which provide the specific mechanics of the topic at hand, in order to clarify exactly what is under debate. It is worth noting here that it is not always simply the existence of climate change or global warming as a phenomenon that is under discussion. Often, as in the *Encyclopædia Britannica Concise* definition of *global warming*, it is not the phenomenon itself that is being questioned, but rather the validity of its stated effects, as illustrated through the phrase “other scientists maintain that such predictions are overstated” (*Encyclopædia Britannica Concise* 2014). There is also a third angle to this issue which

often presents itself; whilst there may be an acceptance of the concept of *climate change*, and perhaps even of the effects that it is producing, there is a reluctance to accept the anthropogenic nature of the matter. This perspective is depicted by the *Collins COBUILD Advanced Dictionary* with their definition of *global warming* as "the gradual rise in the Earth's temperature caused by high levels of carbon dioxide and other gases in the atmosphere" (2014), wording which clearly excludes the factor of human involvement in the issue. It is necessary to bear these different approaches in mind when examining the data in this study, as the framing of the issue will no doubt be relevant to one or more of these perspectives. The following sections explain the scientific concepts of climate change and global warming, focusing first on the role of greenhouse gases, followed by an explanation of fossil fuels.

3.1.1. Greenhouse Gases

Central to the concepts of *global warming* and *climate change* is what is known as the greenhouse effect; a theory that describes the interactions of solar radiation, thermal radiation, the Earth and its atmosphere. More explicitly, the Sun radiates energy toward Earth at very short wavelengths, primarily in the visible or near-visible portion of the spectrum. Approximately one-third of this solar energy that reaches Earth's atmosphere will be reflected back into space. The remaining two-thirds are absorbed by the Earth's surface and, to a lesser degree, the atmosphere. In order to balance this absorbed energy, the Earth radiates approximately the same amount of energy back into space. Due to the fact that the Earth is much colder than the Sun, the energy it radiates travels at much longer wavelengths, predominantly in the infrared section of the spectrum. A large amount of this thermal radiation which is emitted by the Earth's surface, meaning both land and ocean, is absorbed by the atmosphere. The Earth's atmosphere is comprised of various gases, including the most abundant greenhouse gas – water vapour, which in condensed form produces clouds. This

energy that was absorbed by the atmosphere is then reradiated back toward Earth, creating what is referred to as the greenhouse effect (Solomon et al. 2007, 21-23).

This is essentially the same function that an actual greenhouse performs, hence the name. Similarly to an actual greenhouse, this effect can be positive, and is indeed essential, for life on this planet. Problems begin to arise however when there is an excess of greenhouse gases in the atmosphere, causing too much heat to remain trapped and in turn causing a rise in Earth's temperatures. This is the central definition of the term *global warming* (Parry et al. 2007, 8-9). The term *climate change* is a broader notion, and refers to both global warming itself, and the various climatic effects that this warming is causing; for example rising sea levels, shrinking glaciers, ocean acidification, increased drought and wildfires, more intense heat waves and storms (Ibid.). These, among many other issues, in turn cause considerable problems for humans and other organisms, some of which include; reduced growing seasons, decline or loss of water supplies, flooding and erosion, and increase in disease (Ibid.).

There is a long list of greenhouse gases, but the main gases involved in the greenhouse effect are water vapour (H_2O), carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) (Internet Source 1). Whilst water vapour is certainly the most predominant greenhouse gas, it differs to some extent from the others, as it creates a positive feedback loop. More precisely, the amount of water vapour in the atmosphere is in direct correlation with the temperature – when temperatures increase, more water evaporates, and vice versa. When additional sources cause a rise in temperatures, such as excess carbon dioxide produced from burning fossil fuels, this increases the level of water vapour. The increase in water vapour, as a greenhouse gas, causes temperatures to rise even higher, further intensifying the warming effects of other greenhouse gases – a positive feedback loop (Ibid.). The amount of water vapour in the atmosphere varies largely of course over short periods of time such as hours or days, meaning that despite being the most predominant greenhouse gas, it is a relatively short-lived one (Hansen 2008).

Conversely, long-lived greenhouse gases, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), are more chemically stable and persist in the atmosphere for much longer periods of time; which may be from decades to centuries, or in some cases even millennia. Due to this persistence, these emissions have the ability to influence climate over the long-term (Solomon et al. 2007, 23-24).

3.1.2. Fossil Fuels

There are three main forms of fossil fuels; coal, oil, and natural gas. These fossil fuels all accumulate over periods of millions of years as part of the Earth's carbon cycle. Layers of mud and organic carbon, such as that from plants, build up and over time are exposed to heat and pressure resulting in the formation of sedimentary rock, for example shale. In cases where dead plant matter has accumulated at a faster rate than it can decay, these layers of organic carbon form coal, oil or natural gas (Riebeek 2011, 2).

Carbon is the building block of all life on Earth, but it is currently also the main source of energy relied on by humans. When humans burn fossil fuels for energy, they are returning carbon to the atmosphere at a rate much higher than that which occurs as part of the Earth's own carbon cycle. At this point in time, the ocean and plant life have absorbed just over half of the extra carbon humans are emitting into the atmosphere. The remaining percentage is retained in the atmosphere where it performs as a greenhouse gas and contributes to global warming (Ibid.).

Burning fossil fuels is not the only way in which humans are affecting the Earth's carbon cycle; clearing forests also contributes, as the biomass that is removed is often of the dense growth variety, which removes considerably more carbon from the atmosphere through photosynthesis than the crops or pasture it is replaced with. Additionally, exposed soil containing decayed plant matter also vents carbon into the atmosphere. As a result, "humans are currently emitting just under a

billion tons of carbon into the atmosphere per year through land use changes" alone (Riebeek 2011, 4).

Anthropogenic carbon emissions play a central role in climate change, and they also play a considerable role in politics. There are many international environmental agreements, for example the *Kyoto Protocol*, the *Convention on Long-Range Transboundary Air Pollution* (CLRTAP), and various European Union legislation, such as the *National Emissions Ceilings Directive*, all of which have been designed to encourage measurable reduction in emissions the world over. The curious thing about these agreements however, is that countries are only responsible for the emissions they produce within their own borders (van Aardenne et al. 2013, 7-8). This means that if a country decides to manufacture goods in another country, goods which will subsequently be transported back for their own market, the pollution they create in this entire process will not count towards their own emissions. This practice of course allows many wealthier countries to reduce their own emissions while they simultaneously increase them elsewhere. It is also worth noting that agriculture, and the global food system as a whole, accounts for between 19 and 29 per cent of world greenhouse gas emissions (Vermeulen et al. 2012, 1). This is not due solely to the vast distances that food often travels before reaching its intended market, but rather has to do with the way in which the trade system has been established, and the way in which monopolies such as Monsanto continue to run it (Panzarini et al. 2015, 634). This information indicates how the environmental aspect of climate change is not easily separated from the political aspect, a subject that is further examined in the following section.

3.2. Political Aspect

There is an often quoted controversial memo in which Republican pollster and strategist Frank Luntz, prior to the 2002 mid-term elections, advised the George W. Bush administration to:

> …start talking about "climate change" instead of global warming… climate change "sounds like you're going from Pittsburgh to Fort Lauderdale." While global warming has catastrophic connotations attached to it, climate change suggests a more controllable and less emotional challenge (Luntz 2002, 142).

Despite the intervening years, it seems that many Americans still share the connotations expressed by Frank Luntz, as observed in more recent studies such as *What's In A Name? Global Warming vs. Climate Change* (Leiserowitz et al. 2014).

There has for some time now been a rather blunt partisan divide over the issue of climate change. Riley E. Dunlap states that it is now well documented that political orientation is the best prediction of attitudes toward the issues of global warming and climate change (2014), indicating that Democrats are on the whole less likely to be skeptical of either climate change or global warming as a phenomenon, regardless of the term used; whereas Republicans are generally skeptical of the issue in question, though are more likely to be skeptical of global warming than of climate change (Ibid.). These are results that have been echoed by the Pew Research Center, which found in a survey conducted during 2014 that 79 per cent of Democrats said that there was solid evidence that global temperatures are on the rise, as opposed to 37 per cent of Republicans. In terms of climate change being a major threat to the United States, 68 per cent of Democrats agreed that it is, whereas only 25 per cent of Republicans shared that sentiment (Motel 2014).

Naomi Klein illustrates in her book *This Changes Everything* that the main political conflict that climate change creates is that the vast majority of the proposed solutions to the issue require renouncing some of the most fundamental ideals of the American culture:

> And that is what is behind the abrupt rise in climate change denial among hardcore conservatives: they have come to understand that as soon as they admit that climate change is real, they will lose the central ideological battle of our time – whether we need to plan and manage our societies to reflect our goals and values, or whether that task can be left to the magic of the market (Klein 2014, 40).

This statement alludes to the ideology that has been on the rise in America and globally for the last four decades. Introduced during the late 1960s and early 1970s, this was a movement that pushed for policies such as tax cuts, free trade, and the auctioning off of core state assets. This movement

came in response to a time of apprehension among the United States business elite, when it was feared that public opinion may have been swaying away from capitalism. The 1980s and 1990s continued to see the furthering of free trade agreements, and with the collapse of communism, free market fundamentalism and corporate liberation was generally considered the most appropriate ideology (Klein 2014, 38-39). It is worth noting that the 2008 financial collapse occurred as a direct result of this copious deregulation (Ibid.), which was followed by considerable questioning of this free market ideology by the general public. The connection between climate change and the questioning of the free market is exemplified in a statement from an organiser with *Occupy Wall Street* (a protest against social and economic inequality); "The fight for the climate isn't a separate movement" (Marom 2013). Marom highlights the fact that the perceived solutions to both issues are in fact the same – giving up on fossil fuels will remove a large portion, and force the redistribution of, the wealth and power of "the 1 per cent" (Internet Source 2), which refers to the concept of the top 1 per cent of the wealthiest people in the world owning more wealth than the other 99 per cent of the global population. This rising instability and uncertainty of a fundamental system is something that contributes to making *climate change* and *global warming* such potent terms, as they have the ability to shape and affect our world not just environmentally; but also socially, economically and politically.

3.2.1. False Balance

False balance, also sometimes termed false equivalence, is the act of giving equal weight to both claims that are supported by scientific evidence, and to those that are largely unsupported or have in fact been completely discredited (Nisbet 2009, 16). False balance often takes place in a bid to remain impartial and present all sides of an argument. This form of framing a situation often leads to the perception that there is doubt and a lack of consensus involved in the issue, even when this

may not be the case. In his article *Communicating Climate Change: Why Frames Matter for Public Engagement*, Matthew Nisbet describes this mechanism in the following manner:

> If individuals are given an ambiguous or uncertain situation to consider, the different ways in which a message is presented or framed – apart from the content itself – can result in very different responses, depending on the terminology used to describe the problem or the visual context provided in the message. For many members of the public, climate change is likely to be the ultimate ambiguous situation given its complexity and perceived uncertainty (Nisbet 2009, 16).

Nisbet's findings support what has thus far been uncovered by this thesis – *climate change* as a term is vague and ambiguous, it does not appear in all dictionaries, and its very existence is still questioned by many. The fact that the framing of a particular issue plays such a large role in its perception is an incredibly important aspect of this study.

Climate change and *global warming* are issues that are definitely presented in myriad ways, as evidenced through the data employed in this study, the results of which are examined in chapter 6. In a poll conducted by *Gallup*, it was found that only 60 per cent of Americans agree that most climate scientists consider climate change to be occurring. Almost 30 per cent of those polled did not believe that any scientific consensus on the issue existed at all (Dugan 2014). The same poll also addressed the issue that, compared to self-identified Democrats, almost four times as many self-identified Republicans agreed that global warming was generally exaggerated (Ibid.). It is interesting to note of course that stating a belief in the exaggeration of an issue generally presumes a belief that the issue in question exists. Due to the nature of the term *global warming* however, this idea is not as clear cut – a disbelief in global warming (or climate change) often signals a belief that whilst the phenomenon is agreed to be occurring, it is not something that is human-caused, or perhaps even if it is, it is not something that will cause humans any considerable devastation (Ibid.). Due to these various admissions, it is occasionally unclear precisely what aspect (such as existence, cause, or effects) is being contested when discussing *climate change* or *global warming*. The multifaceted element of this issue undoubtedly contributes to its perceived ambiguity.

3.2.2. Groups of Influence

Society is comprised of many groups of people, and certain groups have the potential to exert considerably more influence over the rest of the population than others. Research that was carried out by Martin Gilens and Benjamin I. Page examined which sets of individuals have the most influence over public policy: average citizens, economic elites, or organised interest groups; either mass-based or business-oriented. The broad study concluded the following:

> Multivariate analysis indicates that economic elites and organized groups representing business interests have substantial independent impacts on U.S. government policy, while average citizens and mass-based interest groups have little or no independent influence (Gilens & Page 2014, 564).

It is very interesting to see that even mass-based interest groups have very little influence on government policy, underlining the fact that political power is held in the hands of the economic elite, regardless of the portion of the population they are up against. Another study, produced by Riley Dunlap and political scientist Peter Jacques, discovered that 72 per cent of books that dismiss climate change, often referred to as "climate denial books", most of which were published within the last 25 years, have a verifiable association with conservative think tanks (Dunlap & Jacques 2013, 705). These books include authors from the Cato Institute (which was founded with help from Charles Koch), the Heartland Institute, and the Science and Environmental Policy Project, among others, clearly an influential group that has direct links with the economic elite (Ibid., 707).

Another point of interest regarding groups of influence is one of the proposed solutions to climate change – geoengineering. Geoengineering is described by the *OED* as "the modification of the global environment or the climate in order to counter or ameliorate climate change" (2010). More precisely, this refers to ideas such as the "Pinatubo Option"; which describes a process of purposely sending copious amounts of sulphur dioxide into the stratosphere, in order to mimic the effects of a large volcanic eruption, such as that of Mount Pinatubo in the Philippines in 1991. One of the effects of the eruption of Mount Pinatubo included global temperatures dropping by half a

degree Celsius the following year, due to the droplets of sulphuric acid circulating in the stratosphere reflecting away a portion of incoming solar radiation (Klein 2014, 258-259).

First of all, it is clear that developing countries are most vulnerable to the effects of climate change, as described by Nicholas Stern in the following manner:

> Developing countries are especially vulnerable to the physical impacts of climate change because of their exposure to an already fragile environment, an economic structure that is highly sensitive to an adverse and changing climate, and low incomes that constrain their ability to adapt (Stern 2007, 106).

Despite having had little hand in contributing to climate change, and being especially vulnerable to the impacts, it may initially seem that geoengineering could aid in rectifying this situation. Unfortunately, Earth's climatic systems do not operate on a basis of equality, and many developing countries would also be in line to bear the brunt of these proposed solutions; in a model of the predicted effects of geoengineering with sulphur dioxide, "precipitation in Europe and North America appears minimally changed, but Africa's equatorial region is lit up in red, an indication of serious drought" (Klein 2014, 260).

Bill Gates has referred to geoengineering as "just an insurance policy" (Internet Source 3). David G. Victor et al., conversely, describe another possibility in their article *The Geoengineering Option: A Last Resort Against Global Warming*; "Although governments are the most likely actors, some geoengineering options are cheap enough to be deployed by wealthy and capable individuals or corporations" (2009, 71). Whilst this may depict a rather extreme scenario, it would not be the first time wealthy individuals or corporations have made decisions that negatively affect a significant number of others in order to continue to turn a profit, for example Chevron's actions in Nigeria (Manby, 1999).

These issues once again highlight the immense capability that climate change has to alter life as we know it environmentally, politically, socially and economically. These are sufficiently motivating factors to provoke many groups and individuals into very carefully crafting their representation of the issue. Whether the frame they choose is related to the environmental, political,

social, or economic aspect of the phenomenon, will no doubt be in line with their own interests in the relative realm, which is an important factor to consider when examining the data of this study.

4. Theoretical and Methodological Framework

This chapter describes the theoretical and methodological framework of this study. The first section examines the methodology that is employed in this thesis and the theoretical framework that supports it. This includes illustrating the individual stages of identification and analysis of metaphors, with a focus on distinguishing conceptual metaphors, and an account of metaphor theory that allows these distinctions to be made. The second section provides a brief overview of metaphor use in political media, indicating how closely intertwined the subject of climate change is with American politics, the purpose of which is to describe the setting that this theory and methodology is being applied in for this study. Whilst the data that is being investigated in this thesis originates from news and business publications, both of these types of sources are involved in reporting on politics and dispersing political ideas to the general public. All of the publications selected for this study claim an influential readership, including members of the economic elite; a group which has been shown to be able to exert, among other things, substantial influence over government policy (Gilens & Page 2014, 564).

4.1. Metaphor Theory and Methodology

In describing the methodology of metaphor analysis, Cameron and Low specify three stages:

> The methodology of metaphor analysis typically proceeds by collecting examples of linguistic metaphors used to talk about the topic… generalising from them to the conceptual metaphors they exemplify, and using the results to suggest understandings or thought patterns which construct or constrain people's beliefs and actions (Cameron & Low 1999, 88).

This study also proceeds by following these three stages; collecting examples of metaphors used in conjunction with the terms *climate change* and *global warming* from the American business and news magazines *Bloomberg Businessweek, Forbes, Newsweek, Time* and the newspaper *The Wall Street Journal*; grouping these metaphors into appropriate categories and identifying the concepts they illustrate; and finally indicating what effects these concepts may have on the beliefs, attitudes, and potential actions of the readers. For the purposes of this study, I have further developed the methodology of Cameron and Low to contain a total of four stages; in which their second stage of identifying conceptual metaphors has been broken down into two separate stages. The method of this study progresses in the following fashion: firstly identifying metaphors that refer to the target domains being investigated (either *climate change* or *global warming*); secondly classifying these metaphors into groups based on the source domain that they employ in the metaphor (for example, *war* or *belief*); thirdly further classifying these metaphors into categories describing the conceptual metaphors they convey (for example, WE ARE AT WAR WITH CLIMATE CHANGE); and lastly suggesting how these concepts both illustrate and formulate people's beliefs, attitudes, and actions.

The first stage of identifying metaphors is concerned with determining whether or not there are metaphors present in the text; checking that a literal source domain and a metaphoric target domain can be identified (Charteris-Black, 2004, 35). This study completes the first stage by a close reading of all the selected articles, identifying all appropriate metaphors, which are metaphors that contain either *climate change* or *global warming* as the target domain, and are clearly constructed in a way that presents an underlying conceptual metaphor.

Stage two consists of classifying all of the identified metaphors into groups according to the source domains that they draw on, for example, domains such as *belief* or *personification*. These are the literal source domains that are being employed to describe the metaphoric target domain of either *climate change* or *global warming*. These categories give an indication of the concepts being illustrated, but they do not yet define the conceptual metaphors that are being conveyed. For

example, there may be two metaphors that employ the same source domain and refer to the same target domain, yet convey opposing conceptual metaphors, a notion that is further explored in chapter 5.

Stage three is then concerned with specifically identifying the conceptual metaphors being conveyed. This proceeds with further classifying the identified metaphors into categories that describe the underlying concept being portrayed. It is these categories which are party to constructing a representation of concepts on a social level (Charteris-Black, 2004, 38). In order to aid in the completion of this stage, this study uses the theoretical framework of Conceptual Metaphor Theory (CMT) that was developed by George Lakoff and Mark Johnson for metaphor analysis, and exemplified in their book *Metaphors We Live By* (1980). In regard to the influence of metaphor, Lakoff and Johnson propose the following idea:

> Our concepts structure what we perceive, how we get around in the world, and how we relate to other people. Our conceptual system thus plays a central role in defining our everyday realities. If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor (Lakoff & Johnson 1980, 3).

In order to really illustrate the impact of conceptual metaphor, and the way it can be grouped and discussed, Lakoff and Johnson give the following examples:

> ARGUMENT IS WAR:
> Your claims are *indefensible*.
> He *attacked every weak point* in my argument.
> If you use that *strategy*, he'll *wipe you out*.
> He *shot down* all of my arguments (Lakoff and Johnson 1980, 4).

The ARGUMENT IS WAR conceptual metaphor is prevalent in English-speaking Western culture, and influences the actions performed during an argument. For example, "we attack his positions and we defend our own. We gain and lose ground. We plan and use strategies" (Ibid.). In addition to discussing arguments in terms of war, we go so far as to also be able to win or lose an argument.

Another good example is the concept that time is equivalent to money:

> TIME IS MONEY
> How do you *spend* your time these days?
> I've *invested* a lot of time in her.
> You're *running out* of time.
> Is that *worth your while*?
> He's living on *borrowed* time (Lakoff and Johnson 1980, 7).

Lakoff and Johnson (1980, 8) state that we perceive time as a valuable commodity and a limited resource. Because we speak and act in ways that reinforce this perception, we now conceive of time in this manner in our culture; "we understand and experience time as the kind of thing that can be spent, wasted, budgeted, invested wisely or poorly, saved, or squandered" (Ibid.). They go on to describe that this vision of time is something relatively new in human history, and certainly does not exist in all cultures, which can sometimes be problematic when cultures converge:

> An anthropologist who studied a fishing village in the Republic of Palau in the Western Pacific concluded that the replacement of traditional time systems with modern ones results in "deterioration of… the awareness of nature's dynamic cyclic rhythms and interrelationships [and] will lead to further deterioration of the environment" (Lawless, 2008, 331).

Lawless goes on to call attention to the fact that the concepts of time used by the Kalinga people in the fishing village relate very closely to their subsistence needs, and fit well with their rituals and ceremonies. He also states that for the Kalinga, "the primary metaphor for time is a pool and not a universal time line" (Ibid.). This is a prime example of how metaphor, as an expression of our concepts of the world around us, can in fact come to have a physical effect on the environment, which is a key notion of this study.

The fourth and final stage of metaphor analysis used in this study is focused on using the results of stage three; where the identified metaphors have been grouped by their underlying concepts. These results are used to propose the basal thoughts and constructs that have driven the use of these specific categories, and whether that motivation is perhaps political, social, environmental or economic. These results are also then used to suggest what beliefs and actions may result from people that assume the central views of these concepts (Cameron and Low 1999, 88).

This particular approach of using four distinct stages for metaphor analysis is especially appropriate for this study; as it provides both a clear method of identifying conceptual metaphors, and each stage required of this method assists in answering the research questions stated in the introduction of this study.

4.2. Metaphor in Political Media

In regard to the field of metaphor analysis and its relationship with politics, Jonathan Charteris-Black specifies that metaphors "can be used to convey the values of the journalist (or the newspaper for whom they are writing) and thereby influence the reader's interpretation of current political issues" (2005, 16). This is an important factor which makes it clear that even when considering a subject that may appear deceptively neutral and scientific, political agendas are almost always involved at some level. The tight relationship between climate change and American politics is perhaps best exemplified by the environmental activism of former United States Vice President Al Gore, who together with the Intergovernmental Panel on Climate Change (IPCC) was jointly awarded the Nobel Peace Prize in 2007 for "their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change" (Internet Source 4), a sentence which is itself heavily laden with conceptual metaphor.

Perhaps somewhat contrarily, Al Gore, during his vice presidency, was also largely responsible for getting many significant environmental movements on board to support the North American Free Trade Agreement (NAFTA) during the early 1990s. At the time, there had been a substantial coalition of North American labour and environmental groups that strongly opposed NAFTA, due to the fact that it would force a decline in labour and environmental standards. However, with his vice president at his side, Bill Clinton was able to sign NAFTA into law in 1993

(Volle 2012, 61-62). This example gives but a small glimpse into the complex and convoluted world of politics and climate change.

Due to the political nature of the topic of climate change, it is an important aspect to consider in the results of this study. This factor is exemplified by both the actions of Al Gore described above, as well as by the dissimilar dictionary definitions of the term *global warming*, and notable dictionary absence of the term *climate change*, investigated in chapter 2. Considering this aspect in the results requires investigating the background of the magazines and newspaper media used in this study, in order to clarify the situation of each publication, and suggest how it may contribute to the findings. This is important, because in terms of creating concepts and exerting sway "within the contemporary context, the media have a powerful influence on how persuasion is performed" (Charteris-Black 2005, 12). This statement indicates that while the media being examined for this study is not specifically political, it still contributes to circulating political ideas to the general public. The news and business publications that are investigated in this study; *Bloomberg Businessweek*, *Forbes*, *Newsweek*, *Time*, and *The Wall Street Journal*, often specify distinctly political aspects when reporting on the issue of climate change, as exemplified in the results of this study examined in chapter 6. It is worth considering that the business publications in particular may have certain motivations for preferring certain angles of the topic, as indicated by *Occupy Wall Street* organiser Marom when he said that "the fight for the climate isn't a separate movement" (2013), a reflection further examined in chapter 3.

5. Material and Method

Climate change is undeniably a global issue, and one that is currently being discussed the world over. Whilst a study of global climate change communication would be especially compelling, for the purposes of this study, it was important to narrow my focus to a more specific area. As I am

interested in examining the way the phenomenon of climate change is portrayed through metaphor, I needed a source of English language texts that would likely contain both the terms *climate change* and *global warming* and present the issues in a manner that would contain reasonable amounts of metaphorical language. I chose to focus on the business and news media of the United States of America, for the reason that America is both a powerful global economic force, and is one of the top emitters of greenhouse gases globally (Internet Source 5), both within its own borders and with its endeavours elsewhere, making it a considerable contributor to anthropogenic climate change. In addition to this, economic and political events that occur in the United States often have global repercussions; for example, the financial crisis of 2008 (Kotz 2009, 305-306), which is why I believe it is important to investigate climate change communication in the United States in particular.

This chapter first examines the data that was chosen for this study; investigating the reasons why certain selections were made, and how they relate to the aims of this thesis. The ensuing subsections provide further information on the publications the data was selected from, followed by the concluding section that describes the analytical procedure used in study.

5.1. Data Sources

The data for this study has been collected from two business magazines, *Bloomberg Businessweek* and *Forbes*; two news magazines, *Newsweek* and *Time*; and one business-oriented newspaper, *The Wall Street Journal*. The reason these sources were chosen is that they are popular publications with large readerships, and they are likely to contain articles using the terms *climate change* and *global warming*, as the subject is both a current news and business item.

The data for this study is comprised of a total of 51 articles, with 10 articles selected each from *Bloomberg Businessweek*, *Forbes*, *Newsweek*, and *Time*; and 11 selected from *The Wall Street Journal*. These articles were selected from a time period spanning 2010-2014, which was a time

span arrived at by working backwards; collecting appropriate data as it appeared in the publications, beginning in late 2014 (when data selection took place), and ending in 2010, which was the year required in order to amass 10 suitable articles from each publication. The basis for the selection of data was to acquire articles that were as current as possible and contained at least a few uses of either or both the terms *climate change* and *global warming* in a form that was clearly projecting a conceptual metaphor. Due to the fact that comparison between publications is an important aspect of this study, it was essential that there was a relatively even distribution of text acquired from each source, the specifics of which have been summarised below in (Table 1.):

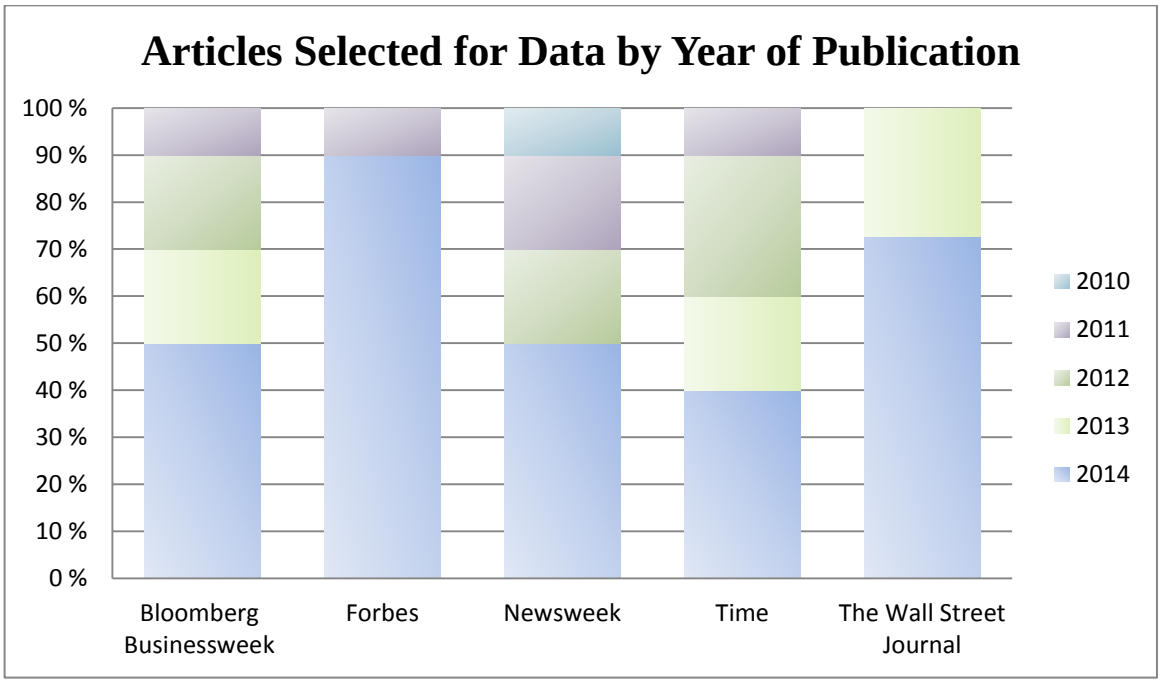
Table 1. Sources and Size of Data

Sources and Size of Data		
Source	**Word Count**	**# of Articles**
Bloomberg Businessweek	12,828	10
Forbes	10,168	10
Newsweek	9,065	10
Time	11,435	10
The Wall Street Journal	9,238	11
Total	52,734	51

The aim was to select 10 articles from each publication, but due to both the low word count of, and relative abundance of current articles, 11 articles were selected from *The Wall Street Journal*. It is clear from (Table 1.) above that *Newsweek* had the lowest overall word count and may also have benefitted from an additional article. The reason this was not done is because *Newsweek* did not have a very broad range of articles covering the topic of climate change that met the set criteria. In fact *Newsweek* was the only publication that required the inclusion of an article from 2010 in order to amount to the 10 articles I was aiming for. Increasing the total word count for *Newsweek* would have required searching for articles that were published more than five years ago, which would certainly be stretching my criteria of a current day investigation, and as such, only 10 ten articles

were included in the *Newsweek* data. The overall distribution of the articles by year of publication is shown in (Graph 3.) below:

Graph 3. Data Sources by Year of Publication



From (Graph 3.) it is quickly deduced that climate change is an increasingly popular subject. It is interesting that *Forbes* in particular had a plethora of articles on the subject of climate change published in 2014, but very little available prior to that, requiring a search as far back as 2011 in order to acquire a tenth article. *The Wall Street Journal*, another business-oriented publication, also had many climate change articles available in 2014, but conversely, was commenting on the topic fairly frequently already in 2013. This is of course likely due to the fact that *The Wall Street Journal* is a daily newspaper, and as such is going to have more articles available than a weekly magazine, but it does not explain why *Forbes*, published only once a fortnight (though more frequently online) had so many articles that focused on the subject of climate change in 2014. The third business-oriented publication, *Bloomberg Businessweek*, was curiously more on par with the news magazines *Newsweek* and *Time* in terms of its coverage of the subject in recent years.

It is worth noting that this graph does not depict the overall distribution of the topic of climate change over the last five years for all of the publications. For example, because *The Wall Street Journal* was able to provide 11 articles that met the set criteria published between 2013-2014, the graph is not able to show how many articles covered the subject between 2010-2012. Conversely, as *Newsweek* required the inclusion of an article from 2010, the graph does depict the distribution of the topic, as viewed through my criteria, between the years 2011-2014. Another point of interest is that as not all articles using the terms *climate change* or *global warming* were selected, as they also needed to meet the criteria of describing either term with a metaphor that denoted an underlying concept. In a similar vein, articles that discussed the subject in a metaphorical manner but did not use the specific terms *climate change* or *global warming* were also not included. This means that the graph does not display how many times the topic of climate change in general was brought up, but it does illustrate how many times the subject occurred in a manner that required both specifically naming the phenomenon and making a more detailed and conceptual mention of it.

The articles selected for the data were taken both through the Tampere University Library electronic journal database, as well as directly from the websites of each publication. This required making searches for both the term *climate change* and *global warming*, as well as reading the articles that these searches returned, and identifying, in a brief manner, associated metaphors and possible underlying conceptual metaphors. Due to the considerable amount of analysis that was required in order to obtain the data, it is of course possible that there may have been articles available that met my criteria, but were not included in this study. However, as this study aims to describe general trends, it is not likely that the accidental dismissal of even a few suitable articles would considerably impact on the results of this study, as all of the articles available in each publication are required to conform to the standards of that publication.

For all of the publications selected for this study, there is more than one version of the magazine or newspaper available. In each case, I selected articles from the United States editions or

website versions, in keeping with the focus of this study. Articles of any kind were allowed; ranging from politics and technology to investing and opinion pieces, as the particular type of article was not of significance for this study, and the subject of climate change arises under many headings. Also the source of each article, whether electronic, in print, or both, was not of significance for this study; as, in terms of readership, all of the publications examined have both broad print readerships and expansive strictly online audiences. As the aim of this study is to show the conceptual metaphors portrayed by each publication, it is enough for the article to appear under the name of the magazine or newspaper in question. Each article published, either in print or online, still needs to meet certain criteria in keeping with the values of the magazine or newspaper, and as such is highly unlikely to contain radical opinions and language that differs greatly from what the readership expects from the publication in question. From the articles that were selected, opinion pieces were the most likely type of article to contain high levels of metaphorical language, and were often written by regular contributors that have considerable followings. This means that the conceptual metaphors put forth by these authors have a considerable chance of exerting sway over the readers.

It is also worth noting the articles selected for the *Time* corpus were to a large extent written by the same author, whereas the other publications examined offered a broader variety of contributors. Clearly reporting on the subject of climate change is one of the tasks required of the *Time* journalist in question. As the journalist has continued to successfully report on the subject over the course of several years, it may be concluded that the conceptual metaphors employed by this singular author are a good representation of what is expected by both *Time* magazine and it's readership. As such, this lack of diversity in authorship was not a significant factor in this study.

5.1.1. *Bloomberg Businessweek, Forbes,* and *The Wall Street Journal*

BusinessWeek magazine was founded in 1929 and purchased by Bloomberg L.P. in 2009 to become *Bloomberg Businessweek* (Lowry 2009). The magazine is published weekly and has a global

circulation of over 980,000 and is available in more than 150 countries. The *Bloomberg* websites Bloomberg.com and Businessweek.com together boast 24 million unique visitors each month (Internet Source 6). In its own words, *Bloomberg Businessweek* "offers a global perspective, timely insights, and unique stories to a new breed of business leader who has an original vision for the future and a willingness to think differently" (Internet Source 7). Due to its large and far-reaching readership, as well as its business focus – something climate change is having an ever increasing effect upon – *Bloomberg Businessweek* was an ideal source for data. It was also the source that provided the highest word count on the subject of climate change in the publications that were examined.

Forbes is a business focused magazine that is published biweekly and describes its distinguishing feature as "our exceptional access to the world's most powerful people – the game changers and disruptors who are advancing industries across the globe" (Internet Source 8). *Forbes* has also identified itself for several decades as the "Capitalist Tool" (Brick 2006, 309), clearly stating its business ideology. The magazine was first published in 1917 and currently enjoys an audience of over 6 million, of which 1.4 million are listed as the "total affluent audience", such as business decision makers and the notably wealthy (Internet Source 9). *Forbes* managed to increase its readership by almost 1 million between 2013-2014, and remains the most read business magazine in the United States (Internet Source 10). *Forbes* and also boasts an online audience of 25.2 million unique visitors each month (Ibid.). This means that a reasonable portion of *Forbes* readers, those belonging to the stated "total affluent audience" category, can be considered as belonging to the 'groups of influence' identified in chapter 3; "economic elites and organized groups representing business interests [that] have substantial independent impacts on U.S. government policy" (Gilens & Page 2014, 564). This is a notable group of individuals that wield considerable influence, meaning that the conceptual metaphors and ideas put forth in *Forbes* may indeed go so far as to effect government policy, as well as broad scale social, political, and

economic conditions in general, due to the nature of its audience. It is for both this matter, and the fact that *Forbes* has managed to so greatly increase its readership within a short period of time, that makes it very interesting to see whether or not the findings of the *Forbes* corpus differ from those of the other corpora.

The Wall Street Journal was founded in 1889 and currently has more than 2.2 million subscribers in the United States, and 31 million unique users of their *Wall Street Journal Digital Network* each month (Internet Source 11). Defined in terms of paid circulation, *The Wall Street Journal* is America's largest newspaper and it is published six days a week. It describes itself as providing "a global perspective to the world's most affluent and influential audience" (Internet Source 12), echoing the self-description given by *Forbes* above. *The Wall Street Journal* goes on to mention that it has "been ranked the most believable and credible newspaper in every Pew Research study since 1985" (Ibid.). For these reasons *The Wall Street Journal* is an excellent source of data for this study, as its articles have the ability to reach both an influential readership, and one that considers its commentary credible.

It is worth noting however, that despite the fact that these publications cover similar issues and are intended for similar demographics, and may indeed be considered as competitors due to these facts, they are not always as separate as they may appear. There are many people and entities involved in the making of these publications and often they are more intertwined than independent. For example, Norman Pearlstine has held many important positions among several of the publications being examined in this study; including Chief Content Officer of *Bloomberg*, Editor-in-Chief of *Time Inc*., Executive Editor of *Forbes*, and Executive Editor of *The Wall Street Journal* (Lowry 2009).

5.1.2. *Newsweek* and *Time*

Newsweek is an American weekly news magazine that was founded in 1933 by a former editor of *Time* (Martyn 2015, 1-2). The magazine has gone through several significant transitions in the past few years; including three ownership changes, a merger with the *Daily Beast* that never quite came to fruition, as well as a full withdrawal from print media in 2012, which it has since returned to as of early 2014 (Alpert 2015). *Newsweek* does however still describe itself as a "primarily digital property" that provides "in-depth analysis, news and opinion about international issues, technology, business, culture and politics" (Internet Source 13). At its peak, *Newsweek* had a circulation of over 3 million, which dropped by half to 1.5 million in 2012 (Sasseen et al. 2013). Currently, *Newsweek* lists its goal as having 100,000 subscribers as of early 2015, and specifies 4 million unique visitors to its digital version, giving it a reasonable audience despite its recent difficulties (Internet Source 14). In its own words, *Newsweek* "doesn't just report the news. It helps set the news agenda" (Ibid.), a phrase that has considerable significance for this study, as it is precisely the setting of the agenda through conceptual metaphor that this study hopes to present, making *Newsweek* a good choice as a source of data.

Time magazine was founded in 1923 and currently has a paid circulation of just over 3 million, with an overall American audience of 16.6 million (Internet Source 15). It is published on a weekly basis and describes itself as "one of the most authoritative and informative guides to what is happening in the worlds of health and science, politics, business, society and entertainment" (Internet Source 16). As a news magazine that provides broad coverage of a range of topics and enjoys a large readership, including a number of affluent readers (Ibid.), *Time* is another useful choice as a source of data, in order to give an accurate portrayal of how credible and authoritative American media are depicting the issue of climate change through conceptual metaphor.

5.2. Analytical Procedure

The analytical procedure of this study follows the framework outlined in chapter 4, in which there are four main stages required for metaphor analysis. The first stage is concerned with determining the relevant metaphors in the data, noting both a literal source domain and a metaphoric target domain (Charteris-Black, 2004, 35). For this study, this first stage was completed using qualitative analysis by close reading. After first selecting appropriate articles that met the set criteria of this study from the publications specified, I proceeded with a close reading, highlighting all uses of the terms *climate change* and *global warming*. Secondly, I refined my list to only include uses of the terms *climate change* and *global warming* that appeared as part of a metaphor, and finally I further refined the data to only include instances of metaphors for which an underlying conceptual metaphor could be clearly identified.

Stage two of this four-pronged approach consists of grouping all of the identified metaphors into categories according to the source domain that they employ, for example, domains such as *war* or *belief*. This stage was completed by attributing source domains on the evidence of word choice, context, and general cultural knowledge. For example, consider the following metaphor:

a. He hopes to tackle *climate change*.

This metaphor may initially be classed as using the source domain of *sport*. Consider the outcome if the sentence should continue in the following manner:

b. He hopes to tackle *climate change* by putting this policy into action.

In this case, the domain of *sport* would indeed be an appropriate classification, with the words *tackle* and *action* being indicative of sport. The structure of the sentence is also in a similar form to that used when discussing a particular play and its result in popular American sports such as football and ice hockey. Conversely, consider the result if the sentence instead continued in the following fashion:

c. He hopes to tackle *climate change* and combat the threat it poses.

The context of the sentence has now changed. In this case, a more appropriate source domain would be *war*. The presence of the words *combat* and *threat* help push the metaphor out of the *sport* domain and into the *war* domain. In some cases of course, a clear distinction is not possible, in which case it is best to include the metaphor in both of the categories it represents. For example, examine the following sentence:

d. *Climate change* demands an urgent solution. (Ki-moon, *WSJ* 25 September 2014)

Example (d) exhibits both the source domain of *personification*, as climate change is depicted as demanding something; and the domain of *mathematics*, as it is described as a problem that requires a solution. This contains both the supposition that climate change wants something from us, and that there is a solution available – it simply requires the right mind to solve the equation. This particular example was classified in the results as exhibiting both of the following conceptual metaphors: CLIMATE CHANGE IS A PERSON OF UNCLEAR PRIORITY and CLIMATE CHANGE IS A MATHEMATICAL EQUATION. The first concept was concluded on the basis of the context of the article in which the metaphor appeared; while stating that climate change was indeed a powerful and important entity, the author, Secretary-General of the United Nations Ban Ki-moon, consequently wondered if anyone was listening. The second concept was concluded in a similar fashion; noting how the article described climate change as an equation for which a solution is available, though we have yet to find it. The concepts portrayed by this metaphor are not opposing, but they are nonetheless different, and allow for the possibility that readers may be left with differing perceptions. In the results of this study, there were a total of 23 metaphors that could each be attributed to two different source domains. All 23 cases were thus counted twice in the results of this study.

Stage three of the four phases of metaphor analysis employed in this thesis is concerned with identifying and describing the conceptual metaphors which are being conveyed by the data. The conceptual metaphors that were found in this study are described in the manner that was developed

by George Lakoff and Mark Johnson and demonstrated in their book *Metaphors We Live By* (1980). For example, a metaphor drawing on the source domain of *war* may put forth a conceptual metaphor such as WE ARE AT WAR WITH CLIMATE CHANGE, or conversely, WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE, an example which describes how metaphors relying on the same source domain (in this case *war*) and referring to the same target domain (in this case *climate change*) can present two opposing conceptual metaphors. The difference is determined by language choices, context, and the overall sentiment of the article the metaphors were found in.

The fourth and final stage of this analytical procedure further examines the conceptual metaphors that were identified in stage three, suggesting both possible motivations for the concepts being conveyed, as well as potential beliefs and actions that may result in readers that are assuming these concepts. This stage was completed by utilising background knowledge of both climate change and the publications the metaphors appeared in, as well as considering the context, language choices, and overall attitude of the article the metaphors were found in. For example, identifying the conceptual metaphor CLIMATE CHANGE IS A DEBATE in a publication with an explicit interest in business, could potentially be conceived as an attempt to downplay the issue by contributing to its commonly perceived ambiguity (Nisbet 2009, 16), as was explored in chapter 3. Turning the subject of climate change into an issue of belief, this conceptual metaphor would feasibly have been motivated by the likelihood of a highly negative impact on the very businesses that drive the publication, and indeed the entire economy, should this belief in climate change be taken as fact. The reader is left with the message that the subject is still uncertain and that it is wise to await further investigation before taking any action.

The results of all four stages are presented in the following chapter, but stage four in particular is revisited in more depth in chapter 7, as it is of notable importance in regard to answering the research questions presented in the introduction of this study.

6. Results

The articles selected from each of the publications investigated in this study; *Bloomberg Businessweek, Forbes, Newsweek, Time,* and *The Wall Street Journal,* were all organised into separate corpora representing each publication. Each of the following sections first provides an overall analysis of the corpus in question, followed by subsections that are grouped according to the source domains employed in the metaphors that were identified in each of the corpora. Each subsection also describes the underlying conceptual metaphors identified, briefly suggesting both the reasons these conceptual metaphors have arisen, and the effects they may potentially produce. These suggestions are based on the evidence of language choices, context, and background knowledge of both the publications and situations in question, topics that have been addressed in chapters 2-5 of this study. Each section concludes with an overview of the results found in the corpus examined. Following the sections concerning the results found in the corpora, this chapter concludes with a summary giving a brief yet encompassing overview of the results as a whole.

6.1. *Bloomberg Businessweek* Corpus

The *Bloomberg Businessweek* (*BB*) corpus contained a total of 75 different metaphors belonging to eight different source domains which could subsequently be identified as belonging to an underlying conceptual metaphor. A total of 55 metaphors were used with the term *climate change*, and a total of 20 metaphors were used with the term *global warming*. In the entire text of the *Bloomberg Businessweek* corpus there were 88 instances of the term *climate change*, and 28 of the term *global warming*, making *climate change* the clearly favoured term, both in use with conceptual metaphor and otherwise. It is worth noting that there is a high usage of conceptual metaphors in conjunction with both terms; in 65 per cent of the instances in which the terms *climate change* and *global warming* appear in the corpus, they are described using a conceptual metaphor. Not all

metaphors were clear cut in terms of their source domain; a total of eight metaphors, one using the term *global warming* and seven using the term *climate change*, have each been attributed to two different source domains. For the purposes of this study, these eight metaphors have been counted twice in this analysis, the reason being that both interpretations are possible, leading to the fact that the reader may be influenced by either or even both underlying concepts being projected by the metaphor. A summary of the source and target domain findings are presented in (Table 2.):

Table 2. The *Bloomberg Businessweek* Corpus

Bloomberg Businessweek Corpus		**Target Domain**			
Source Domain	Tokens	Climate change	% of source domain total	Global warming	% of source domain total
WAR	31	24	77	7	23
BELIEF	28	22	79	6	21
PERSONIFICATION	10	8	80	2	20
HEALTH	4	4	100	0	0
MATHEMATICS	4	3	75	1	25
DESTRUCTION	3	0	0	3	100
SPORT	2	0	0	2	100
JOURNEY	1	1	100	0	0
Total	83	62	75	21	25

The most common source domain in the corpus was *war* with 31 tokens, accounting for 37 per cent of the metaphors, followed by *belief* with 28 tokens at 34 per cent, and thirdly *personification* with 10 tokens, accounting for 12 per cent. The source domains *mathematics*, *health*, *destruction*, *sport*, and *journey* all accounted for less than five metaphors and less than five per cent each.

6.1.1. Source Domain *War*

The source domain of *war* contained a total of 31 tokens, 25 of which referred to the target domain of *climate change*, and seven of which referred to the target domain of *global warming*, making *climate change* again the clearly favoured term. Examining the metaphors that used *war* as a source domain, two underlying concepts were identified: WE ARE AT WAR WITH CLIMATE CHANGE, and

CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE. The first concept, as perhaps expected from metaphors that draw on the source domain of *war*, is described as WE ARE AT WAR WITH CLIMATE CHANGE, where the "we" may be understood as humanity in general, and the associated metaphors use terms such as *threat*, *risk*, *fight*, and *take action on*:

1. The idea that *climate change* poses serious risks to U.S. national security, long contested in conservative circles, is now an integral part of Pentagon planning. (Hertsgaard, *BB* 27 October 2014)

2. Smaller-scale initiatives to fight *climate change* at least offer the promise of measurable progress. (Kenny, *BB* 12 December 2011)

3. A CNA report issued in May called *climate change* a "catalyst for conflict", arguing that the civil war in Syria was rooted in part in a record drought…(Hertsgaard, *BB* 27 October 2014)

There were a total 24 tokens that exhibited the conceptual metaphor WE ARE AT WAR WITH CLIMATE CHANGE, all of which used emotive and urgent language to convey this idea, such as the wording "poses serious risks" and "catalyst for conflict" in example (1) and (3) respectively.

The second concept identified was CLIMATE CHANGE IS A WAR ROOM DEBATE, which contained a total of seven tokens, and while still drawing on the source domain of *war*, was clearly a milder version than the idea of being all out at war with climate change:

4. In the U.S. and around the world, prominent politicians should make clear that the debate over *climate change* need not demand the unconditional surrender of competing worldviews. (Eds., *BB* 04 August 2014)

5. However remote it appears now, a meaningful and coordinated response to *climate change* may eventually materialize. (Kenny, *BB* 12 December 2011)

6. For those environmentalists convinced that progress on *climate change* won't happen inside the halls of power in Washington…(Greenfeld, *BB* 04 March 2013)

Terms such as "unconditional surrender", "coordinated response" and making "progress on" are metaphors from the *war* domain, but coupled with words such as "prominent politicians", "debate", and "the halls of power in Washington" it is made quite clear that these metaphors are not taking us to the battlefield, but to the command centre – the war room. There is considerably less urgency in

discussion and negotiation than in combat, which is the key difference in these two conceptual metaphors that draw on the *war* domain.

For the seven tokens using the source domain *war* and the target domain *global warming*, one underlying conceptual metaphor was identified: GLOBAL WARMING IS A WAR ROOM DEBATE. While terms such as *threat* and *combat* made an appearance, the metaphors used did not convey a sense of urgency and imminent danger that would be expected in war, instead there are terms such as "lack of government action" and "White House report" that appear to denote ongoing negotiation, as exemplified in the following examples:

7. Surprisingly, the journal Nature more or less agreed with Girling – that if McKibben is serious about combating *global warming*, he should focus his energies elsewhere. (Greenfeld, *BB* 04 March 2013)

8. Steyer's particular grievance is the lack of government action to combat *global warming* (Green, *BB* 29 April 2013)

9. Yet at the same time, progress against *global warming* is being made at the individual country and regional level. (Kenny, *BB* 12 December 2011)

Though there were not many tokens, all of them gave the sense that consensus has not yet been reached on the issue, but that there is still time to debate as we are not yet on the battlefield.

6.1.2. Source Domain *Belief*

The source domain of *belief* contained a total of 28 tokens, 22 of which referred to the target domain of *climate change*, and six of which referred to *global warming*. Two main underlying conceptual metaphors were identified: CLIMATE CHANGE IS A RELIGION, and CLIMATE CHANGE/GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF. The term *belief* used as a source domain is here simply taken to mean an idea that one is certain is true, it does not necessarily have any religious connotations. That said, of the 22 metaphors that referred to *climate change* using the source domain *belief*, 10 could be identified as employing religious language and clearly represented the conceptual metaphor CLIMATE CHANGE IS A RELIGION:

10. It became one of the seminal texts of the *climate change* movement, laying out the scope of the problem and describing humanity's moral obligation to respond. (Greenfeld, *BB* 04 March 2013)

11. In Alabama, *climate change* naysayers resist spending money to thwart rising waters. (Olorunnipa, *BB* 26 May 2014)

12. In 2010, a Tea Party challenger ousted him after seizing on what Inglis has half-jokingly referred to it in the press as his "heresy": insisting that *climate change* is real. (Hertsgaard, *BB* 27 October 2014)

Terms such as "seminal texts", "moral obligation", and "heresy" are clearly associated with religious language from the source domain of *belief*, and in examples (10)-(12) are employed in such a manner that the underlying concept insinuates that climate change is a religious belief. For instance, in example (10) humanity is said to have a "moral obligation to respond", which has been described in detail in a "seminal text" of the "climate change movement". From this it may be deduced that to not respond would cause an individual to be considered immoral, and certainly to be ostracized by others that are part of the "movement".

Example (11) contains an interesting pun; using the term "to thwart rising waters", which brings to mind religious imagery, but also of course the literal interpretation, as climate change is indeed causing a rise in sea levels. The phrase "climate change naysayers resist" invokes the idea of an opposing group, perhaps those of a 'different religion' that do not wish to convert. The reference to "heresy" in example (12) makes it clear that giving a statement on your beliefs in regard to the 'religion of climate change' will see you ostracized from the opposing group. All 10 metaphors identified as belonging to the concept CLIMATE CHANGE IS A RELIGION gave a positive evaluation of the 'religion of climate change', which is not perhaps surprising given that religious connotations, specifically Christian religious connotations and biblical imagery, are viewed in a positive light in American politics. For example, Martin Luther King relied heavily on biblical metaphors in his political rhetoric (Charteris-Black 2005, 64), and, to a lesser extent, Bill Clinton also put forward positive religious conceptual metaphors (Ibid., 136). It would of course be

possible to give a negative evaluation if the wording of the metaphor leaned more towards the idea of a cult than a religion, but no such examples were found in the *Bloomberg Businessweek* corpus.

Examining metaphors that used the target domain of *climate change* and the source domain of *belief*, a second conceptual metaphor was identified: CLIMATE CHANGE IS ONLY AS REAL AS YOUR BELIEF. This refers to the fact the phenomenon in question is only seen to be real as long as people believe in it. When belief ceases to exist, so does climate change:

13. *Climate change* is a tough political sell for some. (Eds., *BB* 04 August 2014)

14. Mayor Patsy Parker… says she's starting to believe *climate change* is causing weather anomalies in her community…"We have to pay attention now" she says. (Olorunnipa, *BB* 26 May 2014)

15. Despite flooding, Alabama officials won't pay to fortify bridges, saying *climate change* is a hoax. (Olorunnipa, *BB* 26 May 2014)

16. Surveys suggest that there may be political safety for Republicans in straddling the issue, since doing otherwise could anger conservative GOP voters who deny *climate change's* existence or offend the majority of the country that says it is an established fact. (Espo, *BB* 24 October 2014)

The category CLIMATE CHANGE IS ONLY AS REAL AS YOUR BELIEF contained 12 metaphors, all of which gave the sense that the existence of the phenomenon is in direct correlation with how one feels about the subject. For instance, example (13) states that climate change is "a tough political sell", describing it as an idea that requires marketing, rather than a fact that requires action. The example truly embodies the conceptual metaphor CLIMATE CHANGE IS ONLY AS REAL AS YOUR BELIEF, by referring to the phenomenon in such a manner as to give the impression that it is a matter of belief, and that this belief is available to be bought and sold. Example (14) uses the phrase "we have to pay attention now", expressing that our consideration of the subject is now required, inferring that in the past it was not. The reason for this current need of our attention is a sudden increase in belief, as exemplified by the words "she's starting to believe".

Conversely, example (15) simply states outright that "climate change is a hoax". As there is a lack of belief, climate change is not perceived as real, leading to the fact that political and economic

decisions are not influenced by the issue, which can be observed in the phrase "officials won't pay to fortify bridges". Example (16) takes a different approach in denoting how there is safety in not voicing an opinion on climate change, regardless of what your personal beliefs on the issue may be. This metaphor reduces the phenomenon of climate change from a scientific conclusion to an argument of faith, making it both a delicate subject to discuss, and also closing it off from rational scientific argument, as beliefs by definition do not require hard evidence. Using the word "safety" alongside the words "anger" and "offend", example (16) makes it clear that climate change is a belief, and one that is best left undiscussed in order not to "anger" or "offend" the people, as it will inevitably do regardless of the speaker's own position.

There were six instances of metaphors that used the source domain *belief* and referred to the target domain *global warming*. All six denoted the conceptual metaphor GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF, as exemplified by the following sentences:

17. Rep. Cory Gardner…took no position on the existence of *global warming* in a debate, and said talk of a scientific consensus is itself overrated. It doesn't exist "to the extent that has been reported in the news," he said. "I think there is disagreement as to that". (Espo, *BB* 24 October 2014)

18. Among Democratic candidates, there is strong consensus that *global warming* is a fact. (Espo, *BB* 24 October 2014)

19. Instead, it has spent the last two years working with energy companies and communities…where many people, including some on the commissions that regulate utility, don't believe *global warming* is real. (Kusnetz, *BB* 08 October 2012)

Example (17) contains a curious phrase; "it doesn't exist to the extent that has been reported in the news", where "it" refers directly to the term *global warming* used in the preceding sentence of the example. It provides an alternative answer to an often 'yes or no' question of belief, denoting instead perhaps a spectrum. The existence of the phenomenon has been accepted, but what that consequently means is still under debate. This contrasts with examples (18) and (19), which state "there is strong consensus that *global warming* is a fact" and "don't believe *global warming* is real", respectively. These sentences are effectively discussing the existence of the phenomenon

through the domain of *belief*, which makes it interesting that the word *fact* has made an appearance in example (18). A fact is defined as a piece of information that is true (*OED* 2014), yet there is only a "strong consensus" on this "fact", which is presented through the domain of *belief*, relying on the concept that GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF.

6.1.3. Source Domain *Personification*

There were eight metaphors identified that used the source domain *personification* and referred to the target domain *climate change*. Jonathan Charteris-Black describes the use of personification as "a way of making… abstract ideological issues meaningful", an approach which he denotes as being "a major leadership strategy during times of national crisis" (2005, 174). Personifying an abstract notion, or in this case a complex system that is difficult to view as a whole, is indeed a way of making the phenomenon more approachable. The underlying concept in these anthropomorphic metaphors is of course CLIMATE CHANGE IS A PERSON, but there is an extra element present in these metaphors, which is extended to form the concept CLIMATE CHANGE IS AN ERRATIC PERSON:

20. The frightening thing isn't that gradually rising temperatures will cause gradually rising costs, but that *climate change* may take us by surprise. (Eds., *BB* 04 August 2014)

21. Yes, yes, it's unsophisticated to blame any given storm on *climate change*. (Barrett, *BB* 05 November 2012)

22. In 2004, *Fortune* reported the existence of a secret document that warned *climate change* could push powers such as China, India, and Pakistan into nuclear war over fresh water supplies. (Hertsgaard, *BB* 27 October 2014)

In example (20) it is explicitly expressed that *climate change*, viewed as an erratic person, may suddenly take us by surprise. Example (21) gives the opposing view of the same concept by stating that as *climate change* is viewed as unpredictable, blame cannot be attributed for every occurrence that might be related to the phenomenon. Example (22) uses the concept CLIMATE CHANGE IS AN ERRATIC PERSON, but extends the concept a step further, forming the conceptual metaphor: CLIMATE CHANGE IS AN ERRATIC PERSON WITH POLITICAL POWER, illustrating how *climate change*

may have the ability to push powerful nations into nuclear war. The unpredictable nature of this ability is clearly viewed as a threat, as perhaps any erratic person with considerable political power would be.

There were only two instances of metaphors that used the source domain *personification* and referred to the target domain *global warming*, both of which convey the underlying concept GLOBAL WARMING IS AN ERRATIC PERSON:

23. Insuring for *Global Warming*'s surprises (Eds., *BB* 04 August 2014)

24. But it has no obvious motive for fingering *global warming* vs. other causes. (Barrett, *BB* 05 November 2012)

Both example (23) and (24) denote *global warming* as an erratic person, once again from both sides of the concept; example (23) illustrates caution, whereas example (24) avoids liability on the same basis.

6.1.4. Source Domains *Health, Mathematics, Destruction, Sport,* and *Journey*

The source domains *health*, *mathematics*, *destruction*, *sport*, and *journey* all accounted for less than five metaphors and less than five per cent each of the *Bloomberg Businessweek* corpus. Each of these source domains are briefly examined below.

The source domain *health* contained four metaphors and all four referred to the target domain of *climate change*. All four examples relied on the conceptual metaphor CLIMATE CHANGE IS AN ILLNESS:

25. If the first effects of *climate change* are already perceptible… all alerts and measures against it have become even more pressing. (Greenfeld, *BB* 04 March 2013)

Terms such as "no signs of abating" and "worst effects" in the data gave the overall impression of *climate change* as an unfortunate illness that appears to be progressing at an alarming rate. It is unclear from the examples whom the patient in question may be, but it appears to range from Earth itself to specific groups of people.

The source domain of *mathematics* contained three references to the target domain of *climate change* and one reference to the target domain *global warming*. All four metaphors relied on the premise that CLIMATE CHANGE/GLOBAL WARMING IS A MATHEMATICAL EQUATION:

> 26. It's precisely because global *climate change* is such a huge, complex, and costly problem that McKibben, 52, has become a tribune for those trying to solve it. (Greenfeld, *BB* 04 March 2013)

Example (26) illustrates how a solution is yet to be discovered, but there are teams working on the formula.

The source domain *destruction* contained three metaphors, with all three referring to the target domain *global warming* and exemplifying the concept GLOBAL WARMING IS A DESTRUCTIVE FORCE:

> 27. He left the magazine… and went to work on The End of Nature, a book that describes the impacts of *global warming* as a fundamental transformation of the earth itself. (Greenfeld, *BB* 04 March 2013)

In example (27) the use of the term *impact* suggests a violent force; one so catastrophic that it shall cause the world to take on a complete transformation.

Only two metaphors used the source domain of *sport*, with both examples using the target domain *global warming*. The underlying concept identified was WE ARE COMPETING AGAINST GLOBAL WARMING:

> 28. Regardless, a planet-wide halt to the generation of new wealth hardly seems the most sensible approach to tackle *global warming*. (Kenny, *BB* 12 December 2011)

It can be difficult to define metaphors that draw on the source domain of *sport*, as so often competitive situations draw on the source domain of *war*, as examined in chapter 5. Certain word choices, however, are usually enough to make the distinction. In example (28) the word "tackle" is one that is very familiar in the domain of *sport*, in addition to which the preceding criticism "hardly seems the most sensible approach" is a very typical pattern of discussion in the *sport* domain, where the phrase could be interpreted as an armchair enthusiast contributing their two cents on a recent play.

There was only one metaphor that used the source domain *journey* and it referred to the target domain *climate change*:

> 29. On Oct. 13, Secretary of Defense Chuck Hagel made it official with the release of the Pentagon's 2014 *Climate Change Adaption Roadmap*… (Hertsgaard, *BB* 27 October 2014)

The specification of a "roadmap" in example (29) denotes of course a journey, where in this case the journey is one of adaption to *climate change*. The choice of words denotes a long journey ahead, as a roadmap refers to a journey undertaken by some form of vehicle. The underlying conceptual metaphor here is CLIMATE CHANGE IS A JOURNEY TO ADAPTION, whereby we will need to navigate our way through the long journey of *climate change* to reach our destination of adaption. Jonathan Charteris-Black describes how *journey* metaphors often occur in language intending to positively evaluate situations, or for example, government policies, by denoting a purposeful and predetermined end, the achievement of a goal, despite possible difficulties along the way (2004, 93). Due to the abundance of the *journey* metaphor in the political arena (Ibid.), it was surprising that there was only one metaphor found in all of the corpora examined in this study that used the source domain *journey*. Conversely, the *war* metaphor, which is also frequently employed in political rhetoric, was found in copious amounts in this study. The lack of the use of *journey* as a source domain could be attributed to the fact that one of the issues that is still being debated in regard to climate change, is exactly what it means for humanity down the road. Even in example (29) above, it is not immediately clear what the end goal of "adaption" signifies.

6.1.5. *Bloomberg Businessweek* Summary

The *Bloomberg Businessweek* corpus demonstrated a wide variety of both metaphors and conceptual metaphors. The most notable detail that arose was the differing use of the terms *climate change* and *global warming* in conjunction with the source domains *war* and *belief*. The term chosen appears to be dependent on the concept that is being portrayed. For example, the conceptual

metaphor WE ARE AT WAR WITH CLIMATE CHANGE, which was depicted 24 times, was only ever used with the term *climate change*. Conversely, the less imminent and urgent concept CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE was denoted using both the terms *climate change* and *global warming* in an even manner, with seven tokens each. A similar approach was observed in the *belief* metaphors, with those referring to the positively evaluated concept CLIMATE CHANGE IS A RELIGION only employing the term *climate change*. Contrarily, the concept CLIMATE CHANGE/GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF, which is more dismissive of the subject of climate change, used both the terms *climate change* and *global warming*.

6.2. *Forbes* Corpus

The *Forbes* (*FB*) corpus contained a total of 63 different metaphors belonging to eight different source domains which were then identified as belonging to an underlying conceptual metaphor. A total of 21 metaphors were used with the term *climate change*, and a total of 42 metaphors were used with the term *global warming*. In the entire text of the *Forbes* corpus there were 57 instances of the term *climate change*, and 98 of the term *global warming*, making *global warming* the clearly favoured term, both in use with conceptual metaphor and otherwise. The use of conceptual metaphors occurs in approximately 40 per cent of the instances where the terms *climate change* and *global warming* are used, a considerably lower percentage than the 65 per cent found in the *Bloomberg Businessweek* corpus. Again, not all metaphors were clear cut in terms of their source domain, and a total of four metaphors, all using the term *global warming*, have each been attributed to two different source domains. Once again they have been counted twice, as either or both interpretations may influence the reader's perceptions. A summary of the source and target domain findings is provided in (Table 3.):

Table 3. The *Forbes* Corpus

Forbes Corpus		Target Domain			
Source Domain	Tokens	Climate change	% of source domain total	Global warming	% of source domain total
BELIEF	41	7	17	34	83
PERSONIFICATION	7	3	43	4	57
DESTRUCTION	6	4	67	2	33
WAR	5	3	60	2	40
HEALTH	4	3	75	1	25
BODY	2	0	0	2	100
MATHEMATICS	2	1	50	1	50
SPORT	1	0	0	1	100
Total	68	21	31	47	69

Clearly the source domain *belief* is overwhelmingly the most popular with 41 tokens and accounting for 60 per cent of the data. The second most frequent source domain used was *personification* with seven tokens, accounting for 10 per cent of the data; followed by *destruction* with six tokens, equivalent to nine per cent of the data; and *war* with five tokens, accounting for seven per cent of the data. The source domains *health*, *mathematics*, *body*, and *sport* each accounted for less than five tokens and less than six per cent of the *Forbes* corpus data each.

6.2.1. Source Domain *Belief*

The source domain of *belief* was plainly the most frequently used domain in the *Forbes* corpus. The *belief* domain contained a total of 41 tokens, seven of which referred to the target domain of *climate change*, and 34 of which referred to *global warming*, making *global warming* the obvious favourite. Examining the metaphors that used *belief* as a source domain, two underlying concepts were identified: GLOBAL WARMING/CLIMATE CHANGE IS A DEBATE, and GLOBAL WARMING/CLIMATE CHANGE IS A CULT. The first concept was expressed through 30 metaphors drawing on the *belief* domain and depicting the concept GLOBAL WARMING/CLIMATE CHANGE IS A DEBATE, with 24 metaphors referring to the target domain *global warming* and six metaphors referring to *climate change*. This debate was represented through two opposing sides; the "deniers" and the "believers"

– or occasionally the "alarmists", conjuring up an image of a large public debate in which each side presents their ideas and evidence, concluding with a vote to decide the leading opinion:

30. Powerful funders are supporting the campaign to deny scientific findings about *global warming* and raise public doubts about the roots and remedies of this massive global threat. (Wynne, *FB* 26 June 2014)

31. There's a popular claim by the deniers that 97% of all scientists think there might be a link between man-made activities and *global warming*, but there's no "real consensus" on this issue. (Wynne, *FB* 26 June 2014)

32. This is a contentious issue, and it's certainly true that *global warming* believers are very emotional about a theory they think is true. (Tamny, *FB* 27 April 2014)

33. …the alarmists are trying to keep *global warming* hysteria hot by throwing pocketbook issues into the furnace. (Smith, *FB* 21 May 2014)

Example (30) illustrates a situation where "powerful funders" are parting with their money in order to secure a suitable outcome on the debate of *global warming*. Example (31) makes a direct reference to "the deniers" without further explanation, which is understood as those on the nonbeliever side of the *global warming* debate. Example (31) uses the phrase "scientists *think* there *might* be a link", as opposed to employing more definite terms, such as *agree*, *say* or even *believe*, terms that often emerge in relation to this frequently quoted statistic. The terms *think* and *might* clearly play better to the underlying concept being portrayed in this sentence.

Example (32) is perhaps slightly surprising in its outright condescending tone, stating that the *believers* are "very emotional" about "a theory they think is true". Firstly, the term *very emotional* infers that because the response is emotional, it is thus not rational, and non-rational responses need not be taken seriously. Secondly, the use of the word *theory* in this context would seem to denote the colloquial usage which refers to an idea, rather than the scientific usage which would refer to an agreed set of principles. The phrase "they think is true" clearly gives the impression that the author is privy to some information that the "believers" are not. Example (33) follows a similar tone, substituting the word *believer* for the word *alarmist*, giving the impression that there should in fact

be no debate, as the answer is clear, but those on the *believer* side of the debate do not wish to concede and instead contribute to keeping "hysteria hot".

There were 11 metaphors identified that used the source domain of *belief,* with 10 referring to the target domain *global warming*, and one to *climate change*, depicting the conceptual metaphor GLOBAL WARMING/CLIMATE CHANGE IS A CULT. These examples used terms such as "true believers", "looming peril" and "apocalypse", strong language which denotes a more specific group than just the *believers* and *deniers* discussed above:

34. Importantly, the story of those housing deniers speaks to the massive opportunity that *global warming*'s true believers have if they're right (Tamny, *FB* 27 April 2014)

35. Understand he is an unabashed believer in *global warming* caused by human activity. (Wiggin, *FB* 26 September 2014)

In example (34) there is use of the term "*global warming's* true believers", expressing a more select group than just the believers. The phrase "if they're right" has both religious and cult connotations, as various religious groups and cults believe that there will be a day of reckoning when we will discover who was "right". Example (35) uses the term "unabashed believer", depicting someone that has strong convictions, though the term is preceded by the words "understand he is", which in this context is using the words "unabashed believer" as an explanation in regards to the thoughts or actions of this individual. The conceptual metaphor GLOBAL WARMING/CLIMATE CHANGE IS A CULT could be considered an extension of the conceptual metaphor GLOBAL WARMING/CLIMATE CHANGE IS A DEBATE, as the debate is considered something that everyone is involved in, whereas the cult deals with a smaller, more select group of people, though the contended issue of belief is still the same.

6.2.2. Source Domains *Personification*, *Destruction*, and *War*

The source domains *personification*, *destruction*, and *war* each accounted for such a small portion of the data; seven, six, and five tokens respectively, which are briefly examined below.

The source domain *personification* accounted for 10 per cent of the data, with a total of seven tokens in the *Forbes* corpus. These tokens were rather evenly distributed between the target domains, with three referring to *climate change* and four referring to *global warming*. Using the domain of *personification*, there did not appear to be a difference in the underlying conceptual metaphor in regard to whether it referred to the target domain of *climate change* or *global warming*. The underlying concept was identified as CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON:

36. *Climate change* may be killing our fancy coffee. (Smith, *FB* 21 May 2014)

37. To be sure, *global warming* is interested in you… (Wiggin, *FB* 26 September 2014)

Example (37) was used in direct reference to the quote "you might not be interested in war, but war is interested in you", which is generally attributed to Leon Trotsky, though there is some debate over whether this is an accurate translation or not (Potgieter & Liebenberg 2012, 287). In this case, *global warming* is being presented as a powerful and inescapable person that cannot be ignored. In a similar fashion, example (36) uses the target domain *climate change* to denote a being that is "killing our fancy coffee", which can be understood as someone in a position of power exercising that power by deciding to take away an enjoyable item from the people. It is worth noting of course that while *climate change* and *global warming* are described as a powerful person, there is an element of jest present, as illustrated by example (36) where it is "our fancy coffee" that is being "killed", which observes the situation from the perspective of the average *Forbes* reader, as opposed to, for example, the position of the farmers that grow the coffee beans, which would require a more serious approach.

The source domain *destruction* accounted for nine per cent of the data with six tokens found in the *Forbes* corpus. Four of these tokens used the target domain *climate change*, and two referred to *global warming*. The underlying concept identified was CLIMATE CHANGE/GLOBAL WARMING IS A DESTRUCTIVE FORCE:

38. In early 2014, *The New York Times* reported Coca-Cola "has embraced the idea of *climate change* as an economically disruptive force" that's limiting access to the water it needs for its beverages. (Wiggin, *FB* 26 September 2014)

39. Since markets plainly don't take seriously the looming peril of *global warming*… (Tamny, *FB* 27 April 2014)

40. Further, the QDR says the desperation that many people, particularly in poorer regions, will face due to *climate change* impacts could lead to "resource competition" and even "terrorist activity". (Wynne, *FB* 26 June 2014)

In example (38) *climate change* is explicitly described as an "economically disruptive force", a force that will, or is, causing destruction of the economy – a central concern of the United States government, among others (Klein 2014, 12). Example (39) also describes *global warming* in terms of being an economically destructive force, illustrating that the markets are not taking this "looming peril" seriously, denoting an opposing idea to that described in example (38). Example (39) could in fact be further expressed as conveying the concept GLOBAL WARMING IS SUPPOSEDLY AN ECONOMICALLY DESTRUCTIVE FORCE, clarifying its position on the concept of global warming, and demonstrating how there is once again an element of jest present, as was identified in conjunction with the *personification* metaphors described at the beginning of this section. Example (40) conversely describes *climate change* as a force that will cause destruction for humanity, "particularly in poorer regions", causing both "resource competition" and "terrorist activity" – a potent term in American media.

The source domain *war*, which was the most frequently used in the *Bloomberg Businessweek* corpus, only accounted for seven per cent of the *Forbes* corpus with just five tokens. Three of these tokens referred to the target domain *climate change*, and two to *global warming*. In all of the metaphors that used the source domain *war*, the underlying conceptual metaphor was identified as WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING:

41. "Your breakfast under assault from *climate change*". (Smith, *FB* 21 May 2014)

42. Tomorrow when it comes to *global warming*'s presumed terrors is seemingly the day that never comes… (Tamny, *FB* 27 April 2014)

The metaphors found in the *Forbes* corpus that used terms from the source domain of *war* were distinctly different to those found in the *Bloomberg Businessweek* corpus, and indeed the underlying concepts also differ distinctly. In example (41) there is a sense of taking the conceptual metaphor WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING and turning it around in such a manner as to make fun of this concept, leading to the new concept WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING. The fact that it is "your breakfast" on the receiving end of an "assault", displays a level of jest that would not be appropriate for a serious topic. Example (42) continues this idea by suggesting that there is a war we are awaiting, which contains "*global warming*'s presumed terrors", but this long awaited war has yet to materialize, and it seems that in this case "tomorrow… never comes".

6.2.3. Source Domains *Health*, *Body*, *Mathematics*, and *Sport*

The source domains *health*, *body*, *mathematics*, and *sport* each accounted for less than five tokens and less than six per cent of the *Forbes* corpus data each. Metaphors using the source domain of *health* referred three times to the target domain *climate change*, and once to *global warming*, with all four metaphors identified as belonging to the underlying conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS AN ILLNESS:

> 43. …the prescribed method for preventing *climate change* is essentially replacing nearly all hydrocarbon energy in the space of less than two generations. (Hayward, *FB* 29 September 2014)

This is well illustrated by example (43), where language usually encountered in a medical setting has been applied to the idea of *climate change*, specifically in the phrase "prescribed method for preventing".

The two tokens in the *Forbes* corpus that used the source domain *body* both referred to the target domain *global warming*, and both depicted the underlying concept GLOBAL WARMING IS A LIVING BEING:

44. Sailing 50 MPH Into The Teeth Of *Global Warming* (Fisher, *FB* 03 January 2014)

Example (44) describes sailing into "the teeth of *global warming*", clearly giving a negative evaluation of the situation, in which we are sailing, high speed, straight into the sharp part of a gaping mouth ready to consume us. The second token identified referred simply to the "heart" of *global warming* and gave a considerably more neutral evaluation of the being that is *global warming*, while still relying on the same conceptual metaphor.

Metaphors that used the source domain *mathematics* referred once to the target domain *climate change*, and once to *global warming*, both exemplifying the conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS A MATHEMATICAL EQUATION:

45. Yes *global warming* is a problem… but divestment puts the cart in front of the horse and misses the real solutions. (Lomberg, *FB* 05 May 2014)

Example (45) illustrates how global warming is explicitly described as a "problem", the "solutions" to which are being missed by those currently working on the formula. The example also refers to "divestment" as one of the proposed solutions, which is a strictly numerical concept. It is worth noting however that the divestment movement as a whole which is being referred to in example (45) is concerned more with social ramifications than economic (Klein 2014, 354), but nonetheless still relies on the principles of mathematics in order to instigate this social change.

Only one metaphor appeared in the *Forbes* corpus that used the source domain *sport*, and it referred to the target domain *global warming*:

46. A lot of well-meaning people argue that to tackle *global warming* we need to stop investing in fossil fuels. (Lomberg, *FB* 05 May 2014)

As explained in the results of the *Bloomberg Businessweek* corpus, the word *tackle* is frequently associated with many popular sports in the United States, and as such metaphors that refer to *tackling* an issue are generally considered to draw on the source domain of *sport*. The underlying concept here is again: WE ARE COMPETING AGAINST GLOBAL WARMING. The preceding phrase "a lot of well-meaning people argue" has a very similar tone to the tokens found in the *Bloomberg*

Businessweek corpus that used the source domain *sport*, in which there is a sense that spectators of a sport are debating over how to make the best play.

6.2.4. *Forbes* Summary

The results of the *Forbes* corpus display an overwhelming favouring of both the term *global warming* and the source domain *belief*. With 41 tokens attributed to the source domain of *belief*, and 34 of these referring to the target domain of *global warming*, it is safe to say that the results of the *Forbes* corpus differ considerably from those of the *Bloomberg Businessweek* corpus. Interestingly, the conceptual metaphors depicted by *Forbes* were largely of a dismissive nature in regard to the phenomenon of climate change, and as such, shared some similarities with the *Bloomberg Businessweek* results. This is evident in the way that the term *global warming* was favoured when portraying concepts that are attempting to minimize the issue of climate change. *Forbes* of course offered no comparative situation in which the term *climate change* would have made more of an appearance, as was found in the *Bloomberg Businessweek* results.

6.3. *Newsweek* Corpus

The *Newsweek* (*NW*) corpus contained a total of 47 different metaphors belonging to six different source domains which could subsequently be identified as belonging to an underlying conceptual metaphor. A total of 41 metaphors were used with the term *climate change*, and a total of six metaphors were used with the term *global warming*, making *climate change* the undoubtedly preferred term in the *Newsweek* corpus. The entire *Newsweek* corpus contained 86 instances of the term *climate change*, and 11 of the term *global warming*, making *climate change* the clearly favoured term, both in use with conceptual metaphor and otherwise. The use of conceptual metaphors in the corpus occurs in just under half of the instances where the terms *climate change* and *global warming* are used. Once again, not all metaphors fell nicely into separate source

domains, though in the *Newsweek* corpus only two metaphors, both referring the target domain *climate change*, were attributed to two domains each and thus counted twice. This was done to account for the variable conceptual message that is presented to the reader. A summary of the source and target domain findings is presented in (Table 4.):

Table 4. The *Newsweek* Corpus

Newsweek Corpus		Target Domain			
Source Domain	Tokens	Climate change	% of source domain total	Global warming	% of source domain total
WAR	20	19	95	1	5
BELIEF	16	13	81	3	19
DESTRUCTION	6	6	100	0	0
PERSONIFICATION	3	2	67	1	33
MATHEMATICS	2	1	50	1	50
SPORT	2	2	100	0	0
Total	49	43	88	6	12

The most common source domain in the corpus was *war* with 20 tokens, accounting for 41 per cent of the data, followed by *belief* with 16 tokens at 33 per cent, and thirdly *destruction* with six tokens, accounting for 12 per cent. The source domains *personification*, *mathematics*, and *sport* all accounted for less than five metaphors each, accounting for six per cent or less of the data each.

6.3.1. Source Domain *War*

The source domain *war* was the most popular domain used in the *Newsweek* corpus, though it was closely followed by the source domain of *belief*. The source domain of *war* contained a total of 20 tokens, 19 of which referred to the target domain of *climate change*, and one of which referred to the target domain of *global warming*. Clearly the favoured target domain in this case was *climate change*. Examining the metaphors that used *war* as a source domain, two main underlying concepts were identified: WE MUST GO TO WAR WITH CLIMATE CHANGE, with 16 metaphors, and WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING, with four metaphors. The most popular concept was different from that found in either the *Bloomberg Businessweek* or *Forbes* corpora; in which

the most frequently used conceptual metaphors contained the supposition that we are already at war with climate change, or supposedly so. In the *Newsweek* corpus, the most frequent conceptual metaphor that draws on the source domain *war*, is suggesting that we have not yet embarked on this war, but that we should. All 16 metaphors identified referred to the target domain of *climate change*:

47. …the Department of Defense has dramatically shifted its views towards *climate change*, and has already begun to treat the phenomenon as a significant threat to national security. (Schlanger, *NW* 14 October 2014)

48. But as scientists issue yet another dire warning about the perils of man-made *climate change*, will governments take action? (Strasser, *NW* 01 April 2014)

49. The Supreme Court has ruled that the federal government can legally fight *climate change* through regulation. (Levy, *NW* 23 June 2014)

Example (47) depicts a shift in attitude toward the issue of *climate change*, with the Department of Defense now considering it a "significant threat to national security", language that infers some form of preparation for conflict. Example (48) also describes a threat, using the term "dire warning", following up with the question "will governments take action?". Posing such a question infers that governments have not yet taken any action. Both examples denote a rising threat that has yet to gain a response, with the sense that a response needs to be given and something must be done. Example (49) states that the "federal government can legally fight *climate change*", implying that it has yet to do so. The Supreme Court has given the go-ahead and we are now awaiting some decisive action from the government, exemplifying the conceptual metaphor WE MUST GO TO WAR WITH CLIMATE CHANGE.

For the second conceptual metaphor identified that used the source domain *war*, only four metaphors appeared in the data. Three of these metaphors referred to the target domain *climate change* and one to *global warming*. The underlying concept is WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING:

50. More Lost Ground on *Climate-Change* Concern (Stone, *NW* 11 March 2010)

51. The decision builds on the court's prior decisions upholding most importantly Clean Air Act authority in the fight against *global warming*… (Levy, *NW* 23 June 2014)

While this conceptual metaphor also occurred in the *Bloomberg Businessweek* corpus, and was also identified in an opposing form in the *Forbes* corpus, it was far less frequent and contained less urgent language in the *Newsweek* data. Example (50) simply states that ground has been lost on *climate change,* implying an ongoing battle that does not appear to be working out so well for us. Example (51) describes a "fight against *global warming*", a cause to which continued support is being given, which is illustrated in the phrase "the decision builds on the court's prior decisions", denoting an ongoing conflict toward which "the court" is contributing supportive measures.

6.3.2. Source Domain *Belief*

The source domain *belief* contained 16 metaphors, 13 of which referred to the target domain *climate change*, and three of which referred to *global warming*. All 16 metaphors were identified as being variants of the underlying conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE:

52. …argued that since *global warming* is a "hoax", there was no need to figure out how to adapt. (Begley, *NW* 06 June 2011)

53. …the United States, one of the few countries in the world where *climate change* deniers hold positions in government (in Congress and at state level). (Strasser, *NW* 01 April 2014)

54. On the opposite side of the divide, *climate-change* deniers… (Begley, *NW* 06 June 2011)

All metaphors identified referred to *climate change* or *global warming* as a matter of belief that is under debate. The term "deniers" was identified in the material, as it was in the comparative *Forbes* data, but conversely there was no mention of "believers" or any other name given to those on the opposing side of the debate in the *Newsweek* data. This leads to the conclusion the authors of the material that used the source domain *belief* have positioned themselves on the *believer* side of the debate, and as such only require a reference term for the opposing side, the *other* that is required for the definition of *self*, as described by Judith Butler (2006, 265). Both examples (53) and (54) use the

term “deniers” in reference to the nonbelievers of the *climate change* debate. Example (52) uses the target domain *global warming*, and states outright that the phenomenon is a “hoax”. The term *hoax* has however been written in quotation marks, inferring that the author of the piece does not agree that *global warming* is a hoax. Each example does however frame the issue as a matter of belief.

6.3.3. Source Domain *Destruction*

The source domain *destruction* accounted for only six metaphors in the *Newsweek* corpus, all six of which referred to the target domain *climate change* and exemplified the concept CLIMATE CHANGE IS A DESTRUCTIVE FORCE:

55. The EPA has just proposed standards to reduce carbon pollution from power plants, and that critical work will move ahead to protect Americans from the worst impacts of *climate change*. (Levy, *NW* 23 June 2014)

56. As Joplin, Mo., learned in the most tragic way possible, against some impacts of *climate change*, man’s puny efforts are futile. (Begley, *NW* 06 June 2011)

As in both the *Bloomberg Businessweek* and *Forbes* corpora, this concept is depicted through significant use of the word *impact*, which appears in all six metaphors identified in the *Newsweek* corpus that use the source domain *destruction*. The word *impact*, which describes the force exerted when one thing strikes another, is used to convey the various forms of destruction that will be (or already have been) encountered when the world is struck by *climate change*. Example (55) refers to an effort being made to “protect Americans” from the oncoming destruction, whereas example (56) conversely describes the aftermath of destruction, in which it is illustrated how the force encountered was so great that any efforts at protection proved “futile”.

6.3.4. Source Domains *Personification*, *Mathematics* and *Sport*

The source domains *personification*, *mathematics*, and *sport* accounted for less than five tokens each, and six per cent or less of the *Newsweek* corpus data, and are briefly examined below.

Metaphors using the source domain of *personification* referred twice to the target domain *climate change*, and once to *global warming*, and all three were identified as belonging to the underlying conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON:

57. The report predicts that *climate change* could cut global economic output by up to 2 percent a year… (Strasser, *NW* 01 April 2014)

This is illustrated in example (57), where climate change has the ability to "cut global economic output", rendering the phenomenon someone that requires our full attention.

Metaphors that used the source domain *mathematics* referred once to the target domain *climate change*, and once to *global warming*, and as in the *Bloomberg Businessweek* and *Forbes* corpora, the underlying concept identified was CLIMATE CHANGE/GLOBAL WARMING IS A MATHEMATICAL EQUATION:

58. Instead of denying that *global warming* is a problem, we should tell Americans why we're the party best equipped to solve it. (Beinart, *NW* 03 September 2012)

In example (58) *global warming* is again explicitly described as a "problem", to which there is a political party available to "solve" the equation.

There were only two metaphors that used the source domain *sport*, and both referred to the target domain *climate change*. With both metaphors, the underlying conceptual metaphor identified was WE ARE COMPETING AGAINST CLIMATE CHANGE:

59. If Obama wants to tackle *climate change*, this may be the better way to go. (Tomasky, *NW* 19 November 2012)

As in the *Bloomberg Businessweek* and *Forbes* corpora, example (59) contains the word "tackle", which is clearly from the domain of *sport*, in addition to which the successive advice "this may be the better way to go" is understood as a spectator's tip for the next play.

6.3.5. *Newsweek* Summary

The *Newsweek* corpus did not contain a large quantity of conceptual metaphors, which may be explained by the fact that as a news publication, it is less likely to employ high levels of

metaphorical language, as it is interested in presenting facts in a clear and concise manner. Nonetheless, as many metaphors are so ingrained in our everyday language that they may become difficult to distinguish from literal expressions, *Newsweek* did portray both a variety of metaphors and concepts. The most frequently used source domains were *war* and *belief*, both of which were used to cautiously describe climate change as both a debate and a threat.

6.4. *Time* Corpus

The *Time* (*TM*) corpus contained a total of 42 different metaphors belonging to six different source domains, which were then identified as belonging to an underlying conceptual metaphor. A total of 31 metaphors were used with the term *climate change*, and a total of 11 metaphors were used with the term *global warming*, making *climate change* the most frequently used term in the *Time* corpus. The entire corpus contained 57 instances of the term *climate change*, and 20 of the term *global warming*, making *climate change* again the clearly preferred term. The use of conceptual metaphors in the *Time* corpus occurs in just over half of the instances where the terms *climate change* and *global warming* are used, giving a similar result to that found in the *Newsweek* corpus. Once again not all metaphors were accounted for just once, two metaphors; one referring the target domain *climate change*, and one to *global warming*, were attributed to two domains each and counted twice. This has again been done to account for the variable conceptual message that is presented to the reader. A summary of the source and target domain findings is presented in (Table 5.):

Table 5. The *Time* Corpus

Time Corpus		Target Domain			
Source Domain	Tokens	Climate change	% of source domain total	Global warming	% of source domain total
WAR	15	9	60	6	40
PERSONIFICATION	13	11	85	2	15
BELIEF	9	7	78	2	22
SPORT	3	1	33	2	67
DESTRUCTION	2	2	100	0	0
MATHEMATICS	2	2	100	0	0
Total	44	32	73	12	27

The most common source domain in the corpus was *war* with 15 tokens, accounting for 34 per cent of the data, followed closely by *personification* with 13 tokens at 30 per cent, and thirdly *belief* with nine tokens, accounting for 20 per cent of the data. The source domain *sport* accounted for three tokens and seven per cent of the data, while *mathematics* and *destruction* both accounted for two tokens and 5 per cent each.

6.4.1. Source Domain *War*

The source domain *war* was the most popular domain used in the *Time* corpus, though it was closely followed by the source domain *personification*, differing in this respect from the other corpora examined in this study. The source domain of *war* contained a total of 15 tokens, nine of which referred to the target domain of *climate change*, and six of which referred to the target domain of *global warming*. In this case the favoured target domain was again *climate change*. Examining the metaphors that used *war* as a source domain, two main underlying concepts were identified: WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING and CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE. The first concept depicts a situation in which we are not yet at war with climate change, but that it is imperative that we soon embark on such a war if we wish to survive, where "we" is understood as humanity in general. There were nine

metaphors that relied on this concept, seven of which referred to the target domain *climate change* and two to *global warming*:

60. He is also convinced that *climate change* is the biggest threat facing the world… (Walsh, *TM* 02 June 2014)

61. The single most important bottom line is that *climate change* is not a distant threat. (Walsh, *TM* 19 May 2014)

Once again terms such as *threat*, *fight*, and *take action* were observed in the data that used the source domain *war*. Example (60) describes *climate change* as "the biggest threat facing the world", which is understood as a call to action; as when a major threat is imposed on the world, it undeniably requires a response. Example (61) echoes this sentiment by stating that "*climate change* is not a distant threat", implying that *climate change* is instead an imminent threat that requires immediate action on our part.

The second conceptual metaphor observed was CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE, which contained a total of six tokens, with two referring to the target domain *climate change* and four referring to *global warming*:

62. …the success or failure of the state's environmental experiment may well decide whether national or even international action on *global warming* ever becomes a reality. (Walsh, *TM* 04 February 2013)

63. …the challenging politics of fighting *climate change* in an age of economic anxiety. (Walsh, *TM* 02 June 2014)

64. While Americans are somewhat more likely… to believe that the U.S. could do more to fight *global warming*, they are by far the least likely to think the U.S. should accept "most of the burden"… (Grunwald, *TM* 23 June 2014)

While still drawing on the source domain of *war*, again using terms such as *combat*, *fighting*, and *taking action*, the underlying concept was clearly a milder version than the idea of being all out at war with *climate change*. Here the concept being put forth is that there is still time for negotiation in this conflict, as exemplified in example (63) where it is observed that the "politics of fighting *climate change*" are quite tricky and require more time and thought in this "age of economic anxiety", because wars are of course always very costly as well as being politically sensitive affairs.

In example (62) a specific "environmental experiment" is being held accountable for swaying the decision on whether or not to take "action on *global warming*". Example (64) also expresses a level of uncertainty in the future actions of the United States, as it is depicted that while many Americans believe "the U.S. could do more to fight *global warming*", they also believe that the United States should not accept "most of the burden" of this conflict, a belief that certainly requires further debate in order to decide whom is to do what in regard to this war on *global warming*.

6.4.2. Source Domain *Personification*

There were 13 metaphors identified that used the source domain *personification*, 11 of which referred to the target domain *climate change*, and two of which referred to *global warming*. Two main underlying conceptual metaphors were identified: CLIMATE CHANGE IS A TRIVIAL PERSON with eight metaphors and, conversely, CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON with five metaphors. The conceptual metaphor CLIMATE CHANGE IS A TRIVIAL PERSON referred to *climate change* in all eight metaphors:

65. If the message is somehow that we're going to ignore jobs and growth simply to address *climate change*, I don't think anybody is going to go for that. (Walsh, *TM* 04 February 2013)

66. A new poll reveals that the U.S. is reluctant to recognize and address *climate change*. (Grunwald, *TM* 23 June 2014)

Example (65) expresses the idea that *climate change* should not override more important issues such as "jobs and growth", indicating that *climate change* is not someone high enough on the continuum of importance to require addressing above all others. Example (66) describes how many Americans that participated in a global poll conducted by *Time* did not feel that the issue of climate change was important enough to be recognized and addressed, conveying the concept that CLIMATE CHANGE IS A TRIVIAL PERSON.

The conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON described *climate change* in an opposing manner, denoting it as someone that resides on a high

position on the scale of power and requires our full attention. Of the five metaphors identified, three referred to the target domain *climate change*, and two to *global warming*:

67. *Global warming* has the potential to singe us, but it could roast our kids and grandkids. If we do nothing until the pain becomes unbearable, we'll be way too late. (Grunwald, *TM* 23 June 2014)

68. Even if politicians ignore *climate change*, the rest of us can't. (Grunwald, *TM* 19 November 2012)

In example (67) *global warming* is described as having the ability "to singe us" and to "roast our kids and grandkids", certainly something not to be taken lightly. Here *global warming* is denoted as a powerful being that will inflict serious injuries on us. In example (68) *climate change* is portrayed as someone that certain "politicians ignore", yet someone "the rest of us can't". *Climate change* is seen as being powerful enough to both demand and warrant our attention, despite a few individuals that still feel they can ignore it.

6.4.3. Source Domain *Belief*

The source domain *belief* was the third most frequent used in the data, containing a total of nine tokens, seven of which referred to the target domain *climate change*, and two of which referred to the target domain *global warming*. All nine metaphors identified exhibited the same underlying conceptual metaphor: CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE:

69. About one-quarter of Americans say there's "no solid evidence" that *climate change* is real, according to a 2013 Pew survey. (Rothman, *TM* 19 May 2014)

70. …who through his journey seeks to raise awareness about *global warming*. (Gregory, *TM* 29 August 2011)

71. Some Republicans do not even admit that *climate change* is real, leaving congressional action a fantasy. (Walsh, *TM* 04 February 2013)

Example (69) expresses the results of a survey in which "about one-quarter of Americans say there's "no solid evidence" that *climate change* is real", describing the phenomenon as a matter of belief. The fact that the phrase "no solid evidence" is in quotation marks would seemingly be to

refer to the words that were presented to the individuals that participated in the survey. It could however also be understood as a difference in opinion of the author, whom has chosen not to state that presumably the other 75 per cent of those surveyed agreed that there was at least some "solid evidence" that "*climate change* is real".

In example (70) the words "seeks to raise awareness" have been employed, which is a term often used in conjunction with bringing serious issues to the attention of the public, implying that *global warming* is indeed a serious issue. Here the term "raise awareness" also implies that more people need to be made aware both that *global warming* exists, and that it is a very serious issue. Example (71) states in a similar vein that "some Republicans do not even admit that *climate change* is real", from which it may be inferred that *climate change* is real, and this is a belief that is commonly shared, but certain Republicans refuse to "admit" this, as it does not favour their interests. Example (71) also goes on to describe the following effects of this belief; or portrayed belief, if not real, in which "congressional action a fantasy". It is of course obvious that if there is no belief that the issue exists, then consequently there will be no action taken on the issue. Due to the conflict of interests that climate change raises, it is not unsurprising that the concept CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE is being employed.

6.4.4. Source Domains *Sport, Destruction,* and *Mathematics*

The source domains *sport*, *mathematics*, and *destruction* accounted for less than five tokens each, with *sport* accounting for seven per cent of the *Time* corpus data, and *destruction* and *mathematics* each accounting for five per cent. Each domain is briefly reviewed below.

Metaphors using the source domain of *sport* referred twice to the target domain *global warming*, and once to the target domain *climate change*, and once again the underlying conceptual metaphor identified was WE ARE COMPETING WITH CLIMATE CHANGE/GLOBAL WARMING:

72. Yes, there's a lot to loathe about *climate change*. But… it's O.K. to cheer a little. (Gregory, *TM* 29 August 2011)

73. One out of three Americans wanted their politicians to fight *global warming*, compared with 3 out of 4 Brazilians. (Grunwald, *TM* 23 June 2014)

In example (72) *climate change* is described as an opposing sports team that there is "a lot to loathe about", however it is stated that it is "O.K. to cheer a little" for this opposing team, perhaps in the name of good sportsmanship. Example (73) describes a situation in which Americans, and indeed a significant amount of Brazilians, wish to put their politicians in the ring to take on *global warming* on behalf of the public.

The source domain *destruction* accounted for only two metaphors in the *Time* corpus, both of which referred to the target domain *climate change* and exemplified the underlying concept CLIMATE CHANGE IS A DESTRUCTIVE FORCE:

74. *Climate change* hit home last year with brutal force: 2012's historic drought singed much of the Midwest… (Walsh, *TM* 04 February 2013)

In example (74) *climate change* is depicted as violent power that "hit home", a very personal space, "with brutal force", invoking the conceptual metaphor CLIMATE CHANGE IS A DESTRUCTIVE FORCE, a force that will certainly impact on the lives of people both in America and all over the globe.

The source domain *mathematics* contained two metaphors, both of which referred to the target domain *climate change* and both of which, as in the prior corpora examined, portrayed the conceptual metaphor CLIMATE CHANGE IS A MATHEMATICAL EQUATION:

75. *Climate change* is only going to be solved if everyone gets involved. (Walsh, *TM* 04 February 2013)

Example (75) describes *climate change* as something that is "going to be solved"; a notion that is generally implied when speaking of mathematical equations, though in this case the solving of the problem is going to require that "everyone gets involved".'

6.4.5. *Time* Summary

The *Time* corpus was very similar to the *Newsweek* corpus in the sense that it also did not contain high levels of metaphorical language, as may be expected from a news publication. The metaphors

that were depicted also frequently used the source domains of *war* and *belief*, and portrayed concepts that illustrated a form of neutrality, often describing climate change as a debate. Interestingly, the source domain of *personification* was the second most frequently used in the corpus, differing from the other publications examined. Using the source domain of *personification*, *Time* managed to convey both the concept CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON, and the opposing CLIMATE CHANGE IS A TRIVIAL PERSON. Despite the fact that the *Time* corpus presented certain concepts only in conjunction with the term *climate change*, this was not considered significant, as the overall numbers concerned were very low, meaning that the choice of term was likely based on the general favouring of the scientifically correct term, rather than being dependent on the concept conveyed. A systematic pattern, as detected in the *Bloomberg Businessweek* corpus, was not observed.

6.5. *The Wall Street Journal* Corpus

The Wall Street Journal (*WSJ*) corpus contained a total of 76 different metaphors belonging to five different source domains which could subsequently be identified as belonging to an underlying conceptual metaphor. A total of 51 metaphors were used with the term *climate change*, and a total of 25 metaphors were used with the term *global warming*, making *climate change* the preferred term in *The Wall Street Journal* corpus. The entire corpus contained 103 instances of the term *climate change*, and 50 of the term *global warming*, making *climate change* the again the clearly favoured term. The use of conceptual metaphors in the corpus occurs in approximately half of the instances where the terms *climate change* and *global warming* are used, giving a very similar percentage to that found in both the *Newsweek* and *Time* corpora. Once again, not all metaphors were accounted for just once, as eight metaphors, six referring the target domain *climate change*, and two referring to *global warming*, were attributed to two domains each and thus counted twice.

This has again been done to account for the variable conceptual message that the reader may receive. A summary of the source and target domain findings is provided in (Table 6.):

Table 6. ***The Wall Street Journal*** **Corpus**

The Wall Street Journal Corpus		Target Domain			
Source Domain	Tokens	Climate change	% of source domain total	Global warming	% of source domain total
WAR	36	31	86	5	14
BELIEF	28	14	50	14	50
PERSONIFICATION	13	10	77	3	23
MATHEMATICS	6	2	33	4	67
SPORT	1	0	0	1	100
Total	84	57	68	27	32

The most common source domain in the corpus was *war* with 36 tokens, accounting for 43 per cent of the data, followed by *belief* with 28 tokens at 33 per cent, and thirdly *personification* with 13 tokens, accounting for 15 per cent. The source domain *mathematics* accounted for six tokens and seven per cent of the data, while *sport* accounted for one token and one per cent.

It is worth noting that in this corpus there was one article that contributed 21 metaphors to the data, a considerably higher number than that of any other article in any of the corpora examined in this study. These metaphors did however provide a range of concepts and used four out of the five source domains identified in the data, and due to the large number of total metaphors found data, did not appear to provide examples that would significantly skew the results.

6.5.1. Source Domain *War*

The source domain *war* was the most popular domain used in *The Wall Street Journal* corpus, though it was closely followed by the source domain of *belief*, mirroring the source domain findings of the *Newsweek* corpus. The source domain of *war* contained a total of 36 tokens, 31 of which referred to the target domain of *climate change*, and five of which referred to the target domain of *global warming*. Clearly the favoured target domain was again *climate change*. Examining the

metaphors that used *war* as a source domain, three main underlying concepts were identified: WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING with 16 metaphors, WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING with 12 metaphors, and WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE with eight metaphors. The most frequent concept referred to was WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING, with 15 metaphors which referred to the target domain *climate change*, and one to *global warming*. As in the *Newsweek* corpus, this conceptual metaphor infers that we have not yet embarked upon this war, but that we should:

76. …will host party for world leaders in New York to pledge urgent action against *climate change*. (Ridley, *WSJ* 04 September 2014)

77. Pentagon Releases Climate Plan, Citing Security Threat of *Global Warming* (Harder, *WSJ* 13 October 2014)

78. Treasury Secretary Says U.S. Must Act Now on *Climate Change* (Harder, *WSJ* 22 September 2014)

Example (76) describes a "party for world leaders" in which "urgent action against *climate change*" will be asked for. This infers that there is a considerable threat on the rise, but that we have yet to embark on any action against it. Example (77) explicitly uses the term "threat" to justify the need for a "Climate Plan", which details the response that will be given. Example (78) also asks for an urgent response, stating that the "U.S. must act now". All of the metaphors that were identified as expressing the underlying concept WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING used language of urgency and many described a threat. These metaphors also referred to the idea of a climate change conflict in future tense, illustrating that we have not yet launched into this war, but that it is imperative that we do.

The concept WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING was identified in 12 metaphors, eight of which referred to the target domain *climate change*, and four of which referred to *global warming*. The concept depicted similar ideas to those described above in how we must go to war, but instead portrayed how we are already involved in this ongoing conflict:

79. So it's unwise to ground any strategy to curb *global warming* on the expectation that a particular technology will get big enough and cheap enough to be a main fix. (Ball, *WSJ* 24 September 2013)

80. The Pentagon has made *climate change* a priority since 2010 when it first identified the phenomenon as a national security threat… (Harder, *WSJ* 13 October 2014)

81. …most significant policy to arrest *climate change* that the U.S. has taken to date. (Harder, *WSJ* 22 September 2014)

Example (79) discusses grounding strategies as if they were war planes, describing how it is "unwise" to gloss over any proposed strategies to "curb *global warming*", giving the distinct impression that we are in the midst of a conflict where decisions need to be made. Example (80) states a specific date in time when *climate change* was "first identified" as a "national security threat", and also describes how *climate change* has been "a priority" in these terms since that date, with the language implying an ongoing conflict. Example (81) also makes a reference to a point in time with the term "to date" in order to illustrate the current situation, where measures have been taken "to arrest *climate change*", though clearly the process in still ongoing, as implied by the phrase "to date".

The concept WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE was identified in eight metaphors, all of which referred to the target domain *climate change*. This conceptual metaphor appeared here in the same manner as in the *Forbes* corpus, illustrating how there seems to be a belief that we are involved in a conflict with *climate change*, but in fact no such thing is taking place:

82. …since they've spent years warning of the threat of *climate change*, even in the face of science that challenges their view. (Seymour, *WSJ* 11 July 2013)

83. Issuing politically correct bows against a speculative threat from *climate change* when ISIS is at the gates of Baghdad will only convince those enemies that we lack the will to do so. (Eds., *WSJ* 14 October 2014)

In example (82) there is a group of people that have "spent years warning of the threat of *climate change*", depicting the conflict we are involved in, yet this has been done "in the face of science that challenges their view", giving the impression that it is all an act for show, a way to advance

their own interests. Example (83) really exemplifies the concept WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE by using the phrase "issuing politically correct bows against a speculative threat". Example (83) denotes how it is "politically correct" to be waging this war against *climate change*, but in reality it is only a "speculative threat" and not one that needs to be taken seriously. It is only necessary to convey that America is at war with *climate change*, because that is what is expected in the realm of global politics.

6.5.2. Source Domain *Belief*

The source domain *belief* was the second most frequently used source domain in the data; containing a total of 28 tokens, 14 of which referred to the target domain *climate change*, and 14 of which referred to *global warming*, a surprisingly even divide. Examining the metaphors that used *belief* as a source domain, two main underlying concepts were identified: CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE, and CLIMATE CHANGE/GLOBAL WARMING IS A RELIGION. The first concept was expressed through 14 metaphors depicting the concept CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE. These metaphors used the source domain *belief* and referred to the target domain *climate change* seven times, and *global warming* also seven times:

84. ALEC doesn't take a position on *climate change*. (Jenkins, *WSJ* 30 September 2014)

85. … large pluralities agree that *global warming* is real and that it is being caused by humans. (Chinni, *WSJ* 25 January 2013)

86. Sadly, the networks' bias on *climate change* has been happening for decades. (Seymour, *WSJ* 11 July 2013)

In example (84) the American Legislative Exchange Council (ALEC) does not "take a position on *climate change*", which immediately infers that there are positions to be taken. ALEC has clearly decided that it is in its best interests to keep out of the debate that is *climate change*. Example (85) explains that there is agreement among "large pluralities" (a term which refers to potential voters)

that "*global warming* is real". This choice of language denotes that this is an issue that is still being questioned, perhaps by other "large pluralities", underlining the political importance of the subject.

Example (86) curiously describes television networks as having a "bias on *climate change*", from which it may be inferred that there are sides to the issue and that the networks are leaning more heavily toward one. The fact that this is described as having "been happening for decades" illustrates a long and convoluted debate, seeing as this bias is depicted as having been entrenched in the media for a relatively long period of time.

The second underlying concept identified was expressed through 14 metaphors depicting the concept CLIMATE CHANGE/GLOBAL WARMING IS A RELIGION by using the source domain *belief* and again referring to the target domain *climate change* seven times and *global warming* also seven times:

87. Who has not witnessed the crucifixion of an apostate by dinner companions claiming to be "passionate" about *global warming*. (Jenkins, *WSJ* 30 September 2014)

88. To call someone a "*climate change* denialist" – or more succinctly, a "climate denialist" – is a stronger accusation than simply calling that person a "denier". (Zimmer, *WSJ* 26 September 2014)

89. Of course in 2010, when the weather seemed to contradict the message of *global warming* alarmism… (Seymour, *WSJ* 11 July 2013)

Example (87) uses terms that are familiar from religious language, such as "crucifixion" and "apostate", to describe a situation in which a person that does not belong to the 'global warming religion' is being reprimanded for their beliefs, or lack thereof. The fact that the word "passionate" appears in quotation marks demonstrates the author's opinion that those who belong to the 'global warming religion' rarely know very much about it, implying that if they did they would perhaps no longer hold their beliefs.

Example (88) expresses levels of nonbelievers, in which there is a "denier" and a "*climate change* denialist", which is considered a stronger term, perhaps because it blatantly states the issue being rejected. It is also worth noting that the term "denialist" is quite similar to the word *atheist*,

while the word "denier" seems further removed. Example (89) conversely uses the phrase "the message of *global warming* alarmism", where "alarmism" has been opposed to *denialism*, as also occurred in the *Forbes* corpus. The use of the term "the message" invokes religious connotations, and indeed the entire phrase does seem to be leaning more toward the concept GLOBAL WARMING IS A CULT, rather than just GLOBAL WARMING IS A RELIGION. The overall sentiment of example (89) is that there are strong beliefs associated with *global warming*, but those beliefs need to be questioned. Example (89) is also very interesting because it is obvious why the term *global warming* has been chosen over the term *climate change* – the sentence would not work as well if one was substituted for the other. If it was stated that "in 2010, when the weather seemed to contradict the message of *climate change* alarmism", it would make the distinction between *weather* and *climate* more obvious, perhaps leaving the reader wondering how specific weather in 2010 would contradict the notion of climate change. Presumably the weather being referred to that took place in 2010 was on the cooler side, which puts the term *global warming* in a much better position to convey the idea that believing in global warming is akin to holding a religious belief.

6.5.3. Source Domain *Personification*

There were 13 metaphors identified that used the source domain *personification*, 10 of which referred to the target domain *climate change*, and three of which referred to the target domain *global warming*. Two main underlying conceptual metaphors were identified: CLIMATE CHANGE/GLOBAL WARMING IS A SCAPEGOAT and CLIMATE CHANGE/GLOBAL WARMING IS A PERSON OF UNCLEAR PRIORITY with six metaphors. The first concept had with five metaphors referring to the target domain of *climate change* and two to *global warming*, and describes climate change as a person that is taking the fall for something that they are in fact not involved in:

> 90. …tried to get New Jersey Governor Chris Christie to <u>blame Superstorm Sandy on *global warming*</u>. (Seymour, *WSJ* 11 July 2013)

91. Alas, their explanations have made their predicament worse by implying that man-made *climate change* is so slow and tentative that it can be easily overwhelmed by natural variation in temperature… (Ridley, *WSJ* 04 September 2014)

Example (90) depicts a situation in which a governor is being coerced into blaming "Superstorm Sandy on *global warming*". In this example the author is implying that this is an unfair lay of blame, and *global warming* is being used as a scapegoat for the situation, as illustrated by the words "tried to get New Jersey Governor Chris Christie to blame…". Example (91) describes *climate change* as someone that is "slow and tentative" and "easily overwhelmed", depicting *climate change* as someone weak and not fit to be blamed, thus implying that to do so is simply making the phenomenon a scapegoat.

The second conceptual metaphor identified was CLIMATE CHANGE/GLOBAL WARMING IS A PERSON OF UNCLEAR PRIORITY, which had six metaphors using the target domain *climate change* and one using *global warming*, and is perhaps a slightly more complex concept. The metaphors that invoke this concept describe a situation in which climate change is considered a person whose importance is under debate:

92. In 2009, 30% of respondents said dealing with *global warming* should be a top priority in Washington… (McCain Nelson, *WSJ* 07 May 2014)

93. …40% of Democrats said addressing *climate change* should be an absolute priority, compared with 14% of Republicans. (McCain Nelson, *WSJ* 07 May 2014)

94. We have to be in a position that dealing with *climate change* is compatible with economic growth. (Harder, *WSJ* 22 September 2014)

Example (92) states that "30% of respondents" in a poll of undisclosed size believe that "dealing with *global warming* should be a top priority". This statement implies that 70 per cent of those polled do not believe that *global warming* is a top priority issue. Example (93) expresses the same sentiment in stating specific percentages of "Democrats" and "Republicans" that believe "*climate change* should be an absolute priority". It is interesting that the *global warming* and *climate change* have been highlighted as top priorities, despite the majority of those polled not agreeing that it is. Example (93) of course wishes to express the divide between Democrats and Republicans, giving

confirmation to the supposition that Democrats are interested in "dealing with" and "addressing" *climate change*, while Republicans are less so.

Example (94) does not depict a difference in opinion, but simply states that while *climate change* requires "dealing with", it must be carefully orchestrated so that *climate change* will not make any cuts to economic growth. Here there is the sense that *climate change* is a powerful person that is able to singlehandedly significantly affect the economy, yet that level of power is still being questioned, and it seems we still have time to "position" ourselves and make negotiations, hence the concept CLIMATE CHANGE/GLOBAL WARMING IS A PERSON OF UNCLEAR PRIORITY.

6.5.4. Source Domains *Mathematics* and *Sport*

The source domain *mathematics* accounted for six tokens and seven per cent of the data, while *sport* accounted for one token and one per cent in *The Wall Street Journal* corpus. Both domains are briefly examined below.

Metaphors using the source domain of *mathematics* referred twice to the target domain *climate change*, and four times to the target domain *global warming*, with all six metaphors relying on the underlying concept CLIMATE CHANGE/GLOBAL WARMING IS A MATHEMATICAL EQUATION:

95. So far, no one has been able to provide a compelling answer to why *climate change* seems to be taking a break. We're facing a puzzle. (Seymour, *WSJ* 11 July 2013)

96. *Global warming* is fundamentally harder than past environmental problems. (Ball, *WSJ* 24 September 2013)

In example (95) we are "facing a puzzle" which infers that there is undoubtedly a solution to be found, but at this current point in time we are still searching for someone to "provide a compelling answer". Example (96) describes *global warming* as a "fundamentally harder" problem than "past environmental problems", which implies that we have indeed provided solutions to prior problems, but this latest problem is of a more complex variety. The nature of the underlying concept however provides certainty that there is a solution to be found.

The source domain *sport* was used for only one metaphor, which referred to the target domain *global warming* and again exemplified the conceptual metaphor WE ARE COMPETING AGAINST GLOBAL WARMING:

97. That includes a handful of gases produced in industrial processes that, pound for pound, pack a far heavier *global-warming* punch than does carbon dioxide. (Ball, *WSJ* 24 September 2013)

In example (97) the language chosen is clearly imitating that used in the sport of boxing, where prior to matches contestants are often discussed and compared in terms of weight and who can put the most force behind their hits. The direct comparison being made in the example is between "carbon dioxide" and other unspecified greenhouse gases, where they are being used to express which source would give *global warming* more power for its punch which is aimed squarely at us.

6.5.5. *The Wall Street Journal* Summary

The Wall Street Journal corpus contained a relatively high level of metaphorical language regarding the terms *climate change* and *global warming*, exemplified by the fact that *The Wall Street Journal* corpus contained almost twice as many metaphors as the *Newsweek* corpus, despite the fact that both corpora shared a similar total word count. Perhaps as business publication, *The Wall Street Journal* is more experienced with metaphor, as the intangible notions of the economy and its workings are often depicted through metaphorical language (Klamer & Leonard 1994, 31). An interesting result in the data was the wide variety of conceptual metaphors portrayed in *The Wall Street Journal* corpus. Though fewer source domains were employed than in the other publications examined, a comparatively high level of conceptual metaphors were found. These concepts also conveyed a wide range of distinct notions, again differing from the other publications. The reasons for this intriguing spread are further investigated in chapter 7.

6.6. Results Summary

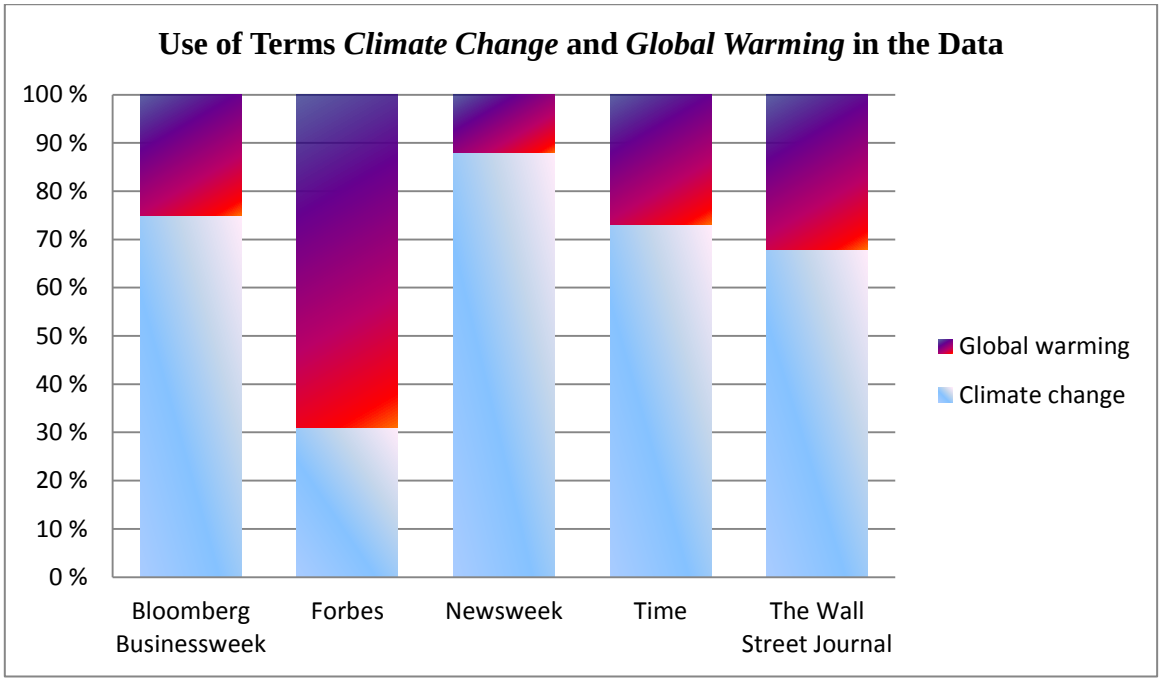
The results collected from the *Bloomberg Businessweek*, *Forbes*, *Newsweek*, *Time*, and *The Wall Street Journal* corpora exemplify a wide range of conceptual metaphors being presented to each readership. A slightly higher number of conceptual metaphors were identified in the business-oriented publications; with *Bloomberg Businessweek* portraying a total of 11 underlying conceptual metaphors in relation to *climate change* and *global warming*, and *Forbes* and *The Wall Street Journal* each putting forth a total of 10. The news magazines *Newsweek* and *Time* portrayed a total of seven and eight underlying conceptual metaphors respectively. This cannot be accounted for simply by a difference in word count, as *The Wall Street Journal* corpus is right on par with the *Newsweek* corpus in terms of size. This can be accounted for however, in terms of popularity of the subject – the business-oriented publications examined in this study had a much higher frequency of the terms *climate change* and *global warming* than did the news magazines. *Forbes* and *The Wall Street Journal* each made a mention of both terms a total of 155 and 153 times respectively, with *Bloomberg Businessweek* not far behind using the terms 117 times. *Bloomberg Businessweek* also had the highest ratio of conceptual metaphors, meaning the magazine conveyed an underlying concept in 65 per cent of the cases in which the term *climate change* or *global warming* was used. *Newsweek* and *Time* made considerably less mentions of topic, with the terms *climate change* and *global warming* referred to a total of 97 and 77 times respectively.

The reason the topic of climate change has made a much more significant appearance in business publications, as exemplified by the fact that the terms *climate change* and *global warming* appear in *The Wall Street Journal* corpus twice as often as they do in the *Time* corpus, is likely due to the fact that the phenomenon is causing considerable instability in the business world. It is a threat not just in physical terms, but also politically, socially, and economically, as explored in chapter 3, which generates sufficient motivation for the business elite to broach the subject on a regular basis.

7. Discussion

The first question this study endeavoured to answer was if the terms *climate change* and *global warming* were favoured differently, both by separate publications and as an overall trend. From the findings presented in (Graph 4.) below, it is quite clear that the term *climate change* is the overall most frequently used target domain:

Graph 4. Target Domain Percentages



A total of 199 *climate change* metaphors were found in the data examined, and it was also the most frequently used term in the media that was investigated, whether in metaphorical use or otherwise, with a total of 391 instances. Conversely, the term *global warming* appeared in only 104 metaphors, and occurred a total of 207 times in the corpora examined. The result confirms the hypothesis proposed in the second section of chapter 2 of this thesis, which stated that this study will likely produce a much higher incidence of the term *climate change* than of *global warming*. This hypothesis was based on the evidence provided by COCA, concerning prior use of both terms in American English in the recent past. *Bloomberg Businessweek*, *Newsweek*, *Time*, and *The Wall Street Journal* all overwhelmingly favoured the term *climate change*. The only exception in the data

was *Forbes*, which interestingly favoured the term *global warming*, using it in almost 70 per cent of the metaphors analysed in the *Forbes* corpus. This means that while the overall trend shows that *climate change* is the most popular term, different publications do favour the terms differently, with *Forbes* clearly preferring to use the term *global warming*. This difference is not easily explained, as the factors that influence the *Forbes* publication are very similar to those which guide *The Wall Street Journal*, yet *The Wall Street Journal* uses the terms *climate change* and *global warming* in a ratio comparable to the news magazine *Time*.

Intriguingly, the hypothesis proposed in the first section of chapter 2 of this study; which stated that *global warming* would be used more frequently in articles intending to highlight the negative effects of the phenomenon, whilst *climate change* would be reserved for concepts endeavouring to downplay the subject, was proved completely wrong. This hypothesis was based on both the research of Leiserowitz et al. (2014) and the observations made by Republican pollster and strategist Frank Luntz (2002), both of which found that the term *global warming* carried considerably more negative connotations for the general public, whilst *climate change* was considered a more neutral term. The fact that this hypothesis was not realised is likely due to the fact that *climate change* is the more encompassing, scientific, and generally correct term to use when discussing the issue, bar of course specific references to only the global warming portion of the subject. As all of the publications examined in this study all prided themselves on being authoritative, reliable, and presenting the facts in a credible manner, it makes sense that they would use the scientifically correct term when describing the issue. *Forbes* of course did favour the term *global warming*, but it certainly wasn't attempting to highlight the negative aspects of the phenomenon. A possible explanation for this is that it is often easier to discredit the notion of global warming than it is of climate change, an assertion which arose in the results of this study in chapter 6. Because of the terming of the word, *global warming* is much easier to attach to the idea of warm weather, which is of course changeable, and thus makes it easier to ignore overall trends when

discussing the subject. *Climate change* conversely, containing the word *climate,* is automatically differentiated from *weather*, and the word *change* of course implies the variability encountered. For example, the occurrence of an unusual and severe snow storm is easily coupled with the term *climate change*, but less intuitive with the term *global warming*.

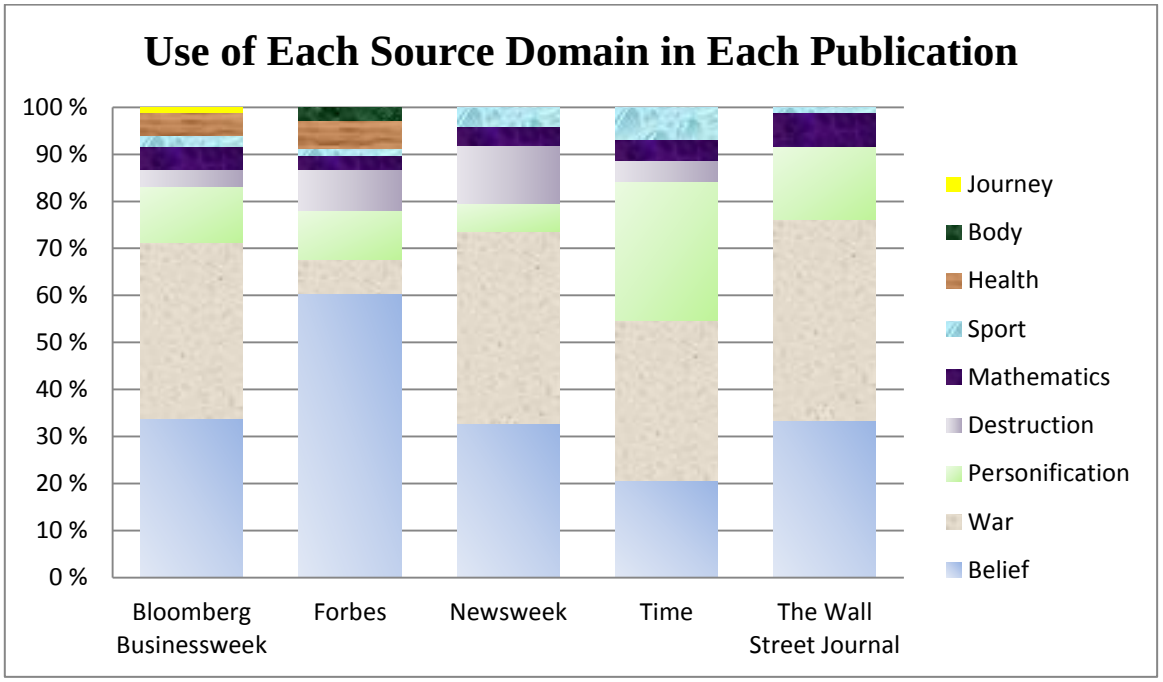
The second question raised in this study was if the terms *climate change* and *global warming* are viewed distinctively. This question is similar to the first question addressed in this study, which both compares the usage of the terms in a numerical manner, and makes suggestions about the differences encountered based on a slight difference in meaning, perceived meaning or connotations. This second question differs in that it specifically explores these slight differences in meaning, perceived meaning or connotations as explicitly evidenced in the data. This means examining whether or not the terms *climate change* and *global warming* are being used interchangeably, or if one term is more likely to be reserved for specific metaphorical concepts than the other. The idea is again based on the evidence that a significant number of Americans attach more negative connotations to the term *global warming* than they do to *climate change* (Leiserowitz et al. 2014, 28), suggesting the possibility of differing conceptual metaphors being portrayed for each term. For the main part, this idea was disproved, as a difference in metaphorical usage of the terms *climate change* and *global warming* was not apparent in the majority of the results of this study. Both terms were found in use with a range of source domains, and both terms were used comparatively evenly in the conceptual metaphors portrayed, relative to their overall appearance in the data. The only exception to this was *Bloomberg Businessweek*, which made a distinction in choice of term when portraying metaphors of *war* and *belief* in regard to the concept that was being depicted. This is evidenced through the fact that every time the conceptual metaphor WE ARE AT WAR WITH CLIMATE CHANGE was conveyed, a considerable total of 24 times, only the target domain *climate change* was used. Conversely, when the conceptual metaphor CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE was used, a concept which notably

contributes to downplaying the issue, both the terms *climate change* and *global warming* were employed evenly, with a total of seven appearances each. In regard to the source domain of *belief*, the positively evaluated concept CLIMATE CHANGE IS A RELIGION was employed a total of 10 times, each time with the target domain *climate change*, while the concept CLIMATE CHANGE/GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF, which comparatively glosses over the seriousness of the issue, was used with both terms, referring to *climate change* 12 times and *global warming* six times. It is fair to say that these numbers demonstrate a difference – when concepts that portray climate change as a serious threat are put forth, the favoured term is undeniably *climate change*. Contrarily, when the concept denotes the idea of climate change being less urgent and perhaps exaggerated, the term *global warming* also makes an appearance.

This outcome was not identified in any of the other publications investigated. *Newsweek*, *Time*, and *The Wall Street Journal* all appeared to use the term *climate change* as their main phrase when discussing the phenomenon, regardless of the concept portrayed, and included the term *global warming* as a synonym to avoid excessive repetition. *Forbes* can also be said to have done the same, but in reverse. It is however of note that in preferring the term *global warming*, *Forbes* also highly favoured conceptual metaphors that dismissed the issue of climate change as an exaggeration, mirroring the approach of *Bloomberg Businessweek*, but as it did not provide any comparison in terms of illustrating a differing concept in which the term *climate change* made a more significant appearance, it cannot be considered as measured an approach in differentiating the terms as in *Bloomberg Businessweek*. *Bloomberg Businessweek* magazine's use of the term *climate change* 24 times in conjunction with the concept WE ARE AT WAR WITH CLIMATE CHANGE does not appear to be coincidental, especially considering that the same approach is echoed in their use of the concept CLIMATE CHANGE IS A RELIGION. This information leads to the conclusion that yes – the terms *climate change* and *global warming* are viewed differently, but this is only distinctly evident in one of the publications examined in this study; *Bloomberg Businessweek*.

The third question this study aimed to answer was if different publications use differing metaphorical language. In order to answer this question, it is appropriate to first examine the metaphorical source domains which were employed in the data of each corpus, illustrated in (Graph 5.) below:

Graph 5. Source Domain Percentages



In terms of source domains used when referring to the terms *climate change* and *global warming*, the most popular source domains were *belief*, *war*, and *personification*. It is clear from (Graph 5.) above that *Bloomberg Businessweek*, *Newsweek*, and *The Wall Street Journal* used the three most popular source domains in a very similar ratio. The news magazine *Time* differed slightly, in that it devoted more metaphors to the source domain of *personification* than it did to *belief*, and overall had the most even spread of source domains employed in the data. *Forbes* once again differed quite markedly, with over 60 per cent of the metaphors found relying on the source domain of *belief*, and the remaining 40 per cent spread between seven other source domains in a relatively even manner.

Five of the nine source domains identified in the corpora appeared in every publication investigated; these domains were *belief*, *war*, *personification*, *mathematics*, and *sport*. The source

domain of *destruction* appeared in all but *The Wall Street Journal* corpus. The remaining domains that were identified; *health*, *body*, and *journey* appeared in so few metaphors that they cannot be considered relevant when examining the overall metaphorical language of the publications investigated. With this information, it is clear that yes, different publications do use differing metaphorical language, with the most obvious differences being *Forbes* magazine's preference of using the source domain of *belief* over all others, and *Time* magazine using the *personification* metaphor at least twice as often, and in some cases three times as often, as the other publications investigated.

In terms of why these differences have occurred, it is useful to examine the source domain in question. The comparatively high use of the source domain *personification* in the *Time* corpus could stem from the fact that the use of personification is "a way of making… abstract ideological issues meaningful" (Charteris-Black 2005, 174). The issue that is climate change, in its entirety, is something that is very difficult to distinctly define, meaning that it could be classed as an abstract concept, and one that anthropomorphic metaphors can make easier to grasp. This could denote a more neutral approach from *Time*, selecting metaphors that are more in line with describing the abstract than issuing political sway, as *Time* is an "authoritative and informative guide" (Internet Source 16) that is interested in portraying a wide variety of news items. This may also explain why the source domain choices in *Time* have a much more even distribution than in the other corpora examined. This does not explain however, why *Time* magazine's competitor *Newsweek* has a source domain distribution that is much more similar to that found in the *Bloomberg Businessweek* and *The Wall Street Journal* corpora. The reason for this may well be found in the difficulties *Newsweek* has faced in the past five years, which have led the magazine to entirely reinvent itself on more than one occasion, illustrating how the magazine may have been taking a more business-oriented approach to the news, in order to distinguish itself from its main competitors.

The notion of climate change as an ideological issue has been explored in both chapter 3 and 6 of this study, demonstrating how it is not only an environmental issue, but also a political, economic, and social issue. This perspective could explain the popularity of the *belief* metaphor in the *Forbes* corpus. Discussing climate change as a matter of belief directly undermines the phenomenon as a scientific fact, and in certain cases, aids in perpetuating false balance by suggesting a lack of consensus. As *Forbes* claims "exceptional access to the world's most powerful people" (Internet Source 8), it may be in their best interests to downplay the topic of climate change, as it is clear that the world's most powerful people shall likely cease to be so if the issue of climate change is addressed in a comprehensive manner. Describing climate change using the *belief* metaphor is a good way to meet this goal, and it is interesting to note that *Forbes* greatly increased its discussion of the subject in 2014, as evidenced in (Graph 3.) in chapter 5.

The fourth question that this study aspired to answer was how the underlying concepts identified in the data are constructed through metaphor. More explicitly, this entails describing both the message that the metaphor is illustrating – the particular perspective that it is portraying to the reader, and explaining the manner in which these concepts are conveyed. In some cases there may be metaphors that draw on the same source domain, refer to the same target domain, and yet portray differing, or even opposing, underlying conceptual metaphors. These are distinguished using the approach explained in chapter 5; by considering context, word choices, and background information. The conceptual metaphors depicted by each publication for the three most frequently used source domains; *war*, *belief*, and *personification*, are briefly examined below.

Bloomberg Businessweek portrayed two conceptual metaphors for each of the source domains being investigated, as illustrated in (Table 7.) below:

Table 7. ***Bloomberg Businessweek*** **Conceptual Metaphors**

Bloomberg Businessweek	
Source Domain	**Conceptual Metaphor**
War	WE ARE AT WAR WITH CLIMATE CHANGE
	CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE
Belief	CLIMATE CHANGE IS A RELIGION
	CLIMATE CHANGE/GLOBAL WARMING IS ONLY AS REAL AS YOUR BELIEF
Personification	CLIMATE CHANGE/GLOBAL WARMING IS AN ERRATIC PERSON
	CLIMATE CHANGE IS AN ERRATIC PERSON WITH POLITICAL POWER

Bloomberg Businessweek depicts climate change through the *war* metaphor as something that is happening now, but is of inconclusive urgency, meaning it is both a battlefield we are already on, and a war room debate taking place prior to the main action. In terms of the *belief* metaphor, climate change is described as both a religion, and in a similar vein, something that is only as real as your belief. These concepts give a sense of climate change being both a questionable phenomenon and a delicate subject. Through the source domain of *personification*, climate change is portrayed as an erratic person, and one that may wield significant power. Overall, these concepts together show that *Bloomberg Businessweek* has a comparatively neutral approach to the subject of climate change, as it appears to cautiously state that the phenomenon is both a present danger and an issue of questionable significance.

Forbes conveyed conceptual metaphors more sparingly and provided two using the source domain of *belief*, and one each for the domains of *war* and *personification*, presented in (Table 8.) below:

Table 8. *Forbes* Conceptual Metaphors

Forbes	
Source Domain	**Conceptual Metaphor**
War	WE ARE SUPPOSEDLY AT WAR WITH GLOBAL WARMING/CLIMATE CHANGE
Belief	GLOBAL WARMING/CLIMATE CHANGE IS A DEBATE
	GLOBAL WARMING/CLIMATE CHANGE IS A CULT
Personification	GLOBAL WARMING/CLIMATE CHANGE IS (SUPPOSEDLY) A POWERFUL PERSON

It has become clear during the course of this study that *Forbes* has a particular stance to promote on the issue of climate change. This is exemplified by the metaphorical concepts it delivered in the articles examined, and confirms the suggestion made in chapter 5 that the results of the *Forbes* corpus may differ from those of the other corpora investigated. This suggestion was based on both *Forbes* magazine's highly influential readership, and the fact that it has been able to so greatly increase its readership within the last two years. *Belief* was the most popular source domain employed by *Forbes*, which it used to portray the subject as both a debate and a cult, giving a negative evaluation of those that "believe" in climate change. On the surface it may seem that the source domain of *personification* has been used to portray climate change as a powerful person, which indeed it has, but in the context of the metaphors found it is clear that there is both an element of jest present, as well as a manner depicting the issue from more attractive angles. The term *supposedly* appears in the (Table 8.) in parentheses, as it was difficult to draw the line as to whether the term *supposedly* should be included or not. The metaphors that did portray the concept GLOBAL WARMING/CLIMATE CHANGE IS A POWERFUL PERSON often contained a component that could be interpreted as either making light of the subject, or observing it from more appealing perspectives, but not always in a clear cut manner, hence the inclusion of "supposedly" in parentheses. The source domain of *war* has more blatantly been used to make light of the popular metaphor currently being employed by many other publications; WE ARE AT WAR WITH CLIMATE CHANGE. The overall effect of these conceptual metaphors is essentially that climate change has

been completely blown out of proportion and is nothing more than a joke or a refuge for lesser minds.

Newsweek provided two conceptual metaphors using the source domain of *war*, and one each for the domains of *belief* and *personification*, illustrated in (Table 9.) below:

Table 9. *Newsweek* Conceptual Metaphors

Newsweek	
Source Domain	**Conceptual Metaphor**
War	WE MUST GO TO WAR WITH CLIMATE CHANGE WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING
Belief	CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE
Personification	GLOBAL WARMING/CLIMATE CHANGE IS A POWERFUL PERSON

Newsweek depicted the concept of climate change in similar manner to *Bloomberg Businessweek*, describing it in a careful and decidedly neutral manner. Using the *war* domain, the concepts denoted were that we are both involved in a war with climate change, and if in fact we are not, we should shortly embark on one. The *belief* metaphor was employed to convey a debate, and the domain of *personification* was used to denote climate change as a powerful person. While the conceptual metaphor is the same as that discovered in the *Forbes* corpus, there is a notable difference – *Newsweek* portrays the concept in much more serious manner. It is worth noting that the *Newsweek* corpus did not contain many *personification* metaphors, but its third most frequently used domain of *destruction* also illustrated its metaphors in an equally serious manner appropriate for a news magazine. Overall, these concepts together denote a comparably neutral position on the subject, while both presenting climate change as a threat to watch out for, and as an unclear issue that requires further investigation before drawing conclusions.

Time presented two conceptual metaphors using the source domain of *war*, two using *personification*, and one referring to *belief*, displayed in (Table 10.) below:

Table 10. *Time* Conceptual Metaphors

Time	
Source Domain	**Conceptual Metaphor**
War	WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING CLIMATE CHANGE/GLOBAL WARMING IS A WAR ROOM DEBATE
Belief	CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE
Personification	CLIMATE CHANGE IS A TRIVIAL PERSON CLIMATE CHANGE/GLOBAL WARMING IS A POWERFUL PERSON

The conceptual metaphors that were identified in the *Time* corpus were very similar in nature to those found in the *Newsweek* corpus, which may be explained by the fact that both are news publications that have an obligation to present issues in relatively neutral and serious manner. Once again, the *war* metaphor was employed to denote that something needs to be done in regard to climate change, though the specifics are still under debate, a sentiment that was echoed in both the *belief* and *personification* metaphors identified. The overall impression that is given through these concepts is the same as that found in *Newsweek*; climate change is a danger that requires further investigation before any big decisions are made.

The Wall Street Journal differed from the other publications examined in that it had many more conceptual metaphors to portray in relation to the source domains of *war*, *belief*, and *personification*, presented in (Table. 11) below:

Table 11. ***The Wall Street Journal*** **Conceptual Metaphors**

The Wall Street Journal	
Source Domain	**Conceptual Metaphor**
War	WE MUST GO TO WAR WITH CLIMATE CHANGE/GLOBAL WARMING
	WE ARE AT WAR WITH CLIMATE CHANGE/GLOBAL WARMING
	WE ARE SUPPOSEDLY AT WAR WITH CLIMATE CHANGE
Belief	CLIMATE CHANGE/GLOBAL WARMING IS A DEBATE
	CLIMATE CHANGE/GLOBAL WARMING IS A RELIGION
	GLOBAL WARMING IS A CULT
Personification	CLIMATE CHANGE/GLOBAL WARMING IS A SCAPEGOAT
	CLIMATE CHANGE/GLOBAL WARMING IS A PERSON OF UNCLEAR PRIORITY

The Wall Street Journal depicts a combination of styles, portraying both the concepts favoured by the comparatively neutral news publications examined, as well as those of the business-focused magazine *Forbes*. *Bloomberg Businessweek* also falls somewhere between these two poles, but the overall effect is considerably more centred, differing from *The Wall Street Journal* which evidently is extending to exhibit both positions. This is illustrated through the conceptual metaphors portrayed in both the *war* and *belief* domains, where climate change is described as an entity we must go to war with, are at war with, and then conversely, are supposedly at war with for the purposes of maintaining appearances. The *belief* metaphors paint a similar picture, where climate change is both a debate and a religion, eventuating in a cult. The overall impression depicted by the many conceptual metaphors used in *The Wall Street Journal* corpus is one of trying to satisfy a broad and varied audience. It is interesting to note that *The Wall Street Journal* describes itself as having been "ranked the most believable and credible newspaper" (Internet Source 12), which could explain its use of conceptual metaphors that portray the issue of climate change in a manner comparative to that used in news magazines, allowing it to maintain credibility with a broad readership by using a relatively neutral approach. *The Wall Street Journal* also claims "the world's

most affluent and influential audience" (Ibid.), which in turn may explain the business-oriented approach employed by its conceptual metaphors that minimize the topic of climate change to an issue of little concern. This approach would aid in maintaining the ideals of the influential portion of its readership.

The last question that this study endeavoured to answer was suggesting what behaviour may result from the messages of these conceptual metaphors that readers receive. There were clearly two main schools of thought on the subject; the first approach portrayed climate change as a looming threat, occasionally describing it as something that we are already experiencing in a negative and destructive fashion, though each publication that illustrated this perception also balanced it by maintaining a level of uncertainty and encouraging further investigation. The second approach described climate change as something highly exaggerated and largely fabricated that is best ignored. Of course, many of the conceptual metaphors that were discovered in this study fell somewhere between these two approaches. In terms of suggesting what behaviour may result from these messages, the answer is surprisingly uncomplicated. Firstly, those that perceive climate change as a far-fetched fabrication are not likely to engage in any counteractive measures, allowing political, economic and social status quo to go unchallenged. Secondly, those that perceive climate change as a threat that requires action are receiving the message that further investigation is favourable before any significant disruption of our current system is undertaken, urging caution above action. Interestingly, those that are portraying climate change as an exaggeration are nonetheless taking action on the subject – as evidenced through *Forbes* magazine's sudden intense increase in articles on the topic of climate change in 2014, illustrated in (Graph 3.) in chapter 5 of this study. All of these articles portrayed conceptual metaphors designed to dismiss the subject of climate change as being of minimal concern. This may be understood as action being taken against the perceived economic, political, and social threat of climate change.

8. Conclusion

This study set out to answer the following question: how are the terms *climate change* and *global warming* portrayed through metaphor in the American business and news magazines *Bloomberg Businessweek, Forbes, Newsweek, Time* and the newspaper *The Wall Street Journal*? The answer is of course that the issue is portrayed in a variety of ways with certain key elements arising in repetition, the overall sentiment of which is one of caution. It is intriguing to notice that the results of this study portray climate change as a complex and ambiguous phenomenon, the same description that arose in the dictionary definitions explored in chapter 2 of this study. The dictionaries consulted denoted the term *global warming* in variety of differing ways and often did not contain the term *climate change* at all. While the term *climate change* was found in abundance in the corpora examined, it was described in similarly convoluted manner, where the specifics in question were not always clear. The main ambiguity of climate change centred around discussion of its existence, its repercussions, and its anthropomorphic element. The principal perceived threat posed by climate change was is its ability to cause social and political upheaval, leading to an overhaul of current economic and social ideologies.

One of the most interesting finds in this study was the way that *Forbes* differed from the other publications examined in its portrayal of climate change, and its notable and sudden increase in interest on the subject in 2014, around the same time as it was able to greatly increase its readership. Perhaps equally interesting was the comparative similarity of all of the other publications investigated. *Bloomberg Businessweek*, *The Wall Street Journal*, and *Forbes* are all business-oriented publications, yet *Bloomberg Businessweek* had much more in common with the news magazines *Newsweek* and *Time* than it did with *Forbes* in relation to the topic of climate change. *The Wall Street Journal* curiously exhibited leanings toward the approaches of all the other publications.

There were of course limits to this study that should be taken into account. Firstly, as the articles for this study were selected manually, it is possible that there may have been an article that met the set criteria that was missed and was not included in this study. In the same vein, it is also possible that a close reading of the texts did not manage to extricate every single climate change metaphor that exhibited an underlying conceptual metaphor. However, in terms of the larger concepts being observed, such oversights are unlikely to have had any great effect on the outcome. Another limitation is in the identification of both metaphors and their underlying concepts – despite an effort to consider all the apparent evidential elements in order to identify and describe both a metaphor and its main concept, my interpretations are nonetheless subject to my own perceptions, experiences, and background. It is quite possible that my interpretation of a specific metaphor differs from that of another reader. Once again however, as the purpose of this study was to show the overall trends and the central concepts being put forth on climate change through the language of metaphor, it is unlikely that interpretations would diverge in such a manner that the principal concepts identified would require altering.

In terms of further research, it would be intriguing to broaden the scope of this study to cover news and business publications of a range of countries in order to discover if the portrayals of climate change differ internationally, or whether they more commonly depict the same conceptual metaphors discovered in this study of American publications. As climate change is obviously an international issue, further research into climate change communication being exercised the world over is required. I believe it will be particularly important to examine the communication taking place over the next few years, as the subject clearly gained popularity in 2014 in all of the publications investigated in this study. It may be predicted that this frequent broaching of the subject will continue to increase, and as it does, opinions and concepts will deviate further from a neutral standpoint, evolving into metaphors specifically endeavouring to exert sway. This escalation in climate change communication will occur as the threat of societal upheaval increases. It is clear

that different groups of people have differing interests and concerns in relation to the issue of climate change, and these will be reflected in the language they choose to express their perceptions.

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